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The March *Review*

Projects that integrate information across survey lines are all too rare. Thus, we are glad to lead with the analysis by Diane F. Herz, Joseph R. Meisenheimer II, and Harriet G. Weinstein of heath care and retirement benefits data from the Current Population and Employee Benefits Surveys. The article, in addition to delivering information on the incidence and characteristics of two important classes of benefits, also helps readers understand the relative strengths and weaknesses of household and establishment surveys.

Randy E. Ilg and Steven E. Haugen examine trends in employment and real earnings, both overall and in high-, medium-, and low-earnings occupational categories. They find that a modest increase in real median earnings in the 1990s was concentrated in time in the final 2 years and most evident in the low-earnings group. The high-earnings group, while it grew substantially over the decade, had only a slight increase in its earnings median. The middle category saw very little change in employment or earnings.

William C. Goodman reports on broad developments in the air transportation industry. His analysis points to an industry in which, over the long haul, prices have declined, productivity has increased, and output and employment have increased substantially.

Mark S. Handcock, Martina Morris, and Annette Bernhardt return us to working across surveys. In this case, the article works with trends in earnings inequality as measured by different household surveys. Researchers have found apparent discrepancies between a rising trend in earnings variance—a measure of increasing earnings inequality—in the Current Population Survey and a falling trend in the variance of earnings in the National Longitudinal Survey of Youth 1979. The authors find that restricting the sample to full-time, full-year workers eliminates much of the discrepancy.

Fewer mass layoffs

There were 14,909 layoff events in 1999, involving a total of 1,572,399 initial claims for unemployment insurance in the 50 States and the District of Columbia. After increasing in 1997 and 1998, the number of layoffs and initial claimants returned to around 1997 levels.

Manufacturing accounted for 33 percent of all mass layoff events in 1999 and 40 percent of initial claims filed. Initial claims filings were most numerous in transportation equipment (98,746) and industrial machinery and equipment (87,363).

The number of initial claims due to mass layoffs continued to be higher in the West (576,654) than in any other region. Layoffs in business services, agricultural services, and motion pictures accounted for 41 percent of the claims in the West. The fewest mass-layoff initial claims continued to be reported in the Northeast region (207,057). For more information, see "Mass Layoffs in December 1999" (USDL 00-49).

Few work stoppages

Seventeen major work stoppages began in 1999, the lowest number in the 53-year history of the series. Of the 17 major work stoppages beginning in 1999, 12 were in the private sector; the remainder occurred in State and local government, all in educational services. In the private sector, seven stoppages occurred in goods-producing industries, and five occurred in service-producing industries.

In all, only 73,000 workers were involved in these work stoppages. This was the lowest level in the 53-year-old series and the first time the level was below 100,000. In comparison, in 1998, major work stoppages idled 387,000 workers. This series peaked in 1952, when 2,746,000 workers were involved in stoppages. Additional information is available in "Major Work Stoppages, 1999 (USDL 00-51).

Higher productivity

Productivity increased 2.9 percent in the nonfarm business sector during 1999, about the same as the 2.8 percent rise in 1998. Output in nonfarm businesses rose 4.7 percent, and hours of all persons increased 1.7 percent. Unit labor costs in the sector grew 1.8 percent in 1999, somewhat less than their 2.4-percent increase in 1998. This reflected, in part, an hourly compensation rise of 4.8 percent in 1999, compared with a 5.2-percent increase in 1998. For more information, see "Productivity and Costs" (USDL 00-64).

Declining unemployment

Annual average unemployment rates decreased in 35 States and the District of Columbia in 1999. Unemployment declined in all four broad regions—Northeast, Midwest, South, and West—and eight of their nine component divisions.

Among the States, Maryland and Oklahoma posted the largest rate declines in 1999 (–1.1 points each), followed by Arkansas (–1.0 point). Four other States recorded decreases of more than three-quarters of a percentage point. (The District of Columbia's rate dropped by 2.5 percentage points.)

Among the Nation's nine geographic divisions, the Pacific division, along with the West South Central division, recorded the largest rate decrease from 1998 (–0.5 percentage point each). The drop in the Pacific division's rate was largely due to improvements in the California labor market.

The West region recorded the largest decline over the year, down 0.5 percentage point, followed by the Northeast and South, down 0.3 point each. Unemployment in the Midwest region edged down 0.1 point. Additional information is available in "Metropolitan Area Employment and Unemployment: January 2000" (USDL 00-71). □

Health and retirement benefits: data from two BLS surveys

Both the household-based Current Population Survey and the establishment-based Employee Benefits Survey have strengths and limitations with respect to collecting information on health and retirement benefits: demographic information is best obtained from household surveys; details of benefit plans are best collected from establishments

Diane E. Herz, Joseph R. Meisenheimer II, and Harriet G. Weinstein

Employee benefits are an important aspect of job quality. In assessing the quality of different types of jobs, workers, employers, and researchers often consider benefits along with other characteristics of jobs, such as pay, job security, job safety, and the type of work involved.[1] Many employers are concerned about the cost of benefits, which compose 28 percent of compensation costs for employers in the private sector and State and local governments.[2] Public policymakers also frequently focus on employee benefits. For example, many observers have expressed concern in recent years about the number of Americans who lack health insurance. In response, policymakers have debated whether universal health coverage should be a national goal. Central to that debate are the role employer-provided health insurance plays in the current health care system and what role it might play in any proposed new system. Employer-provided retirement plans also have been the subject of public policy discussions. As the baby-boom generation—the huge cohort of Americans born between 1946 and 1964—approaches retirement age, concern has arisen about whether Social Security and private pension plans can withstand the strain of providing retirement income to so many people.[3]

Clearly, having accurate information on employee benefits is important for workers, employers, and public policymakers.[4] Two BLS surveys provide estimates of participation in employee benefits plans: the Current Population Survey (CPS) and the Employee Benefits Survey (EBS). The CPS is a monthly survey of 50,000 households from which information is obtained on employment, unemployment, demographics, earnings, and more. The CPS is jointly conducted by the Bureau of Labor Statistics and the Bureau of the Census. The EBS obtains data from establishments on the number of participants in a variety of employee benefits plans and the detailed provisions of those plans. The EBS is being incorporated into the National Compensation Survey, which, when fully integrated, will provide measures of occupational earnings, trends in compensation costs, and participation in, and details of, benefit plans.[5]

This article compares information that the CPS and EBS provide on two of the most important categories of benefits: health and retirement plans. According to the CPS, 66 percent of full-time workers in the private sector participated in a health plan provided by their employer in 1995. The EBS indicates that 71 percent of full-time private-sector workers participated in an employer-provided health plan. The gap between the two surveys is greater in regard to participation in retirement plans: the CPS indicates that 49 percent of full-time workers in the private sector participated in an employer-provided retirement plan in 1995; the comparable figure from the EBS is 60 percent.

The material that follows is intended as a guide for researchers, public policymakers, and others to understand the strengths and limitations of CPS

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and EBS data on employee benefits. Among the topics examined are differences in estimates derived from the two surveys and possible reasons for inconsistencies between them. The types of information that each survey provides also are described.

Data on prevalence of benefits

Although the CPS is a monthly survey, it does not include questions each month on employee benefits. Rather, supplementary questions on benefits have appeared periodically in the CPS since the early 1970s. CPS supplementary surveys on employer-provided benefits were conducted in April 1972, in May of 1979, 1983, and 1988, and in April 1993.[6] There are no current plans to repeat those surveys, but questions on health and retirement benefits were included in CPS supplements on workers in contingent and alternative employment arrangements conducted in February of 1995, 1997, and 1999. The supplementary questions were asked of all employed persons covered in the CPS. The employee benefits data from the February 1999 CPS are not yet available, so the sections that follow examine data from the February 1995 and 1997 surveys. The annual demographic supplement to the CPS, conducted each March, also contains health insurance questions, but the focus of those questions is coverage from *any* source, rather than employer-provided coverage. Hence, the March CPS data are not analyzed in this article.[7]

The EBS is actually three different surveys. In odd-numbered years, "medium and large" private-sector establishments—those with 100 or more workers—have been surveyed. In even-numbered years, "small" private-sector establishments—those with fewer than 100 employees—have been surveyed, as have State and local governments. The analysis that follows combines data from the two private-sector surveys—1994 for small establishments and 1995 for medium and large establishments—to produce estimates for the total private sector. Data from the 1994 survey of State and local governments are combined with data pertaining to the total private sector to provide measures of the entire economy (excluding Federal employees).

The EBS excludes workers in the Federal Government, agricultural workers, self-employed persons, family members who work without pay in family-owned businesses, workers in private households, and some workers in religious and not-for-profit organizations. Such workers are included in the CPS. In order to compare CPS and EBS data on participation in employer-provided health and retirement plans, it is necessary to exclude from the CPS tabulations as many workers as possible who are outside the scope of the EBS. For this reason, the CPS estimates examined in this article generally will include wage and salary workers in the private, nonagricultural sector and in State and local governments. Excluded are Federal employees, workers in agriculture, all self-employed persons (regardless of whether their businesses are incorporated), independent contractors, and unpaid family workers.

The analysis focuses primarily on full-time workers, although benefit coverage for part-time workers is discussed briefly. The two surveys define "full time" and "part time" differently. In the EBS, respondent establishments use their own criteria to determine who is considered to be a full- or part-time employee. In the CPS, anyone who usually works at least 35 hours per week is considered a full-time worker, and those who work fewer than 35 hours are part time.

Why two surveys on benefits?

Many readers may ask why it is necessary to have two surveys that collect information on participation in employee benefit plans. The reason is that household and establishment surveys often complement each other, because each has different strengths and limitations. Household surveys are better equipped to obtain information on workers' demographic characteristics, such as their age, sex, race, and marital status. This information typically is not collected in establishment surveys, because some employers may not keep such records of their employees or, if employers have such information, it may not be organized in a way that is easy to report for a survey.[8]

Establishment survey respondents typically provide more reliable information than household respondents do on some topics, such as the number of hours for which a worker is paid or the industry of the establishment. Information on the industry in which workers are employed is collected each month in the CPS. For broad industry categories, the CPS employment estimates generally are consistent with those obtained from establishment sources. For more detailed industry groups, however, CPS respondents may find it difficult to provide precise information on their employers' activities, products, or services.[9]

Establishments also furnish more reliable information than households do on the details of employer-provided benefit plans and the employers' costs for providing those benefits. Individuals may not have sufficient knowledge of their health or retirement plans to describe the types of plans or their provisions accurately. Response errors may be even more likely when proxy responses are allowed, as they are in the CPS. In the CPS, one person in a sampled household typically answers questions about himself or herself (self-responses) and everyone else in the household (proxy responses). Self-responses are thought to be more reliable than proxy responses, because people naturally can provide more precise information about themselves than about other people in the household, even if those others are close family members.[10] A variety of presurvey testing procedures can help to identify and prevent problems that CPS respondents, whether providing self- or proxy responses, might have in answering questions. Even with such testing, however, the CPS often cannot provide information on benefit plans that is as precise as EBS data. The EBS is more likely to obtain accurate information about benefit plans be-

Exhibit 1. Comparing the CPS and EBS: what information does each survey provide?

Type of information	EBS	CPS	Which survey provides more reliable data?
General information			
Demographic information	No	Yes	Only CPS provides
Industry information	Yes	Yes	Both have strengths[1]
Occupational information	Yes	Yes	Both have strengths[1]
Union membership	Yes	Yes	Each defines differently
Establishment size	Yes	Yes[2]	EBS
Full- and part-time status	Yes	Yes	Each defines differently
Health benefits			
Participation in employer-provided plan	Yes	Yes	EBS
Employee eligibility, regardless of participation	No	Yes[3]	Only CPS provides
Health coverage from sources other than one's own employer	No	Yes[4]	Only CPS provides
Employee premiums, deductibles, copayments, and coinsurance	Yes	No	Only EBS provides
Type of health plan (fee for service, PPO, HMO)	Yes	No	Only EBS provides
Specific types of health services covered by plan	Yes	No	Only EBS provides
Retirement benefits			
Participation in employer-provided plan	Yes	Yes	EBS
Employee eligibility, regardless of participation	No	Yes	Only CPS provides
Type of retirement plan (defined benefit or defined contribution)	Yes	Yes[5]	EBS
Defined-benefit plan formula	Yes	No	Only EBS provides
Specific type of defined-contribution plan	Yes	Yes[6]	EBS
Age and service requirements for normal- and early-retirement eligibility	Yes	No	Only EBS provides
Eligibility and benefit levels for disability retirement	Yes	No	Only EBS provides
Employer contributions to defined-contribution plans	Yes	Yes[5]	EBS
Coordination of defined-benefit plan payments with Social Security	Yes	No	Only EBS provides
Vesting schedules	Yes	No	Only EBS provides
Survivor benefits	Yes	No	Only EBS provides

[1] The EBS classifies industries and occupations somewhat more accurately, but because the CPS has a much larger sample size, it is able to provide more industry and occupational detail.

[2] The February 1995 and 1997 CPS supplements did not include any questions on establishment size or firm size. The CPS supplement conducted in May 1972 included questions on establishment size—that is, the number of people who work at the same location as respondents to the CPS sample work. The CPS supplements conducted in May 1979, 1983, and 1988 and April 1993 also included questions on establishment size. In addition, those supplements included questions on whether the employer operated at more than one location and, if so, how many people worked at all locations. Survey researchers have long considered responses to these questions to have poor accuracy, because many respondents to the CPS and other household surveys are unlikely to know how many people work for the employers of household members.

[3] The May 1988, April 1993, and February 1995 and 1997 CPS supplements included questions on eligibility to participate in employer-provided health plans, but the May 1979 and 1983 CPS supplements did not.

[4] The May 1988, April 1993, and February 1995 and 1997 CPS supplements included questions on health coverage from sources other than one's own employer, but the May 1979 and 1983 CPS supplements did not.

[5] The May 1988 and April 1993 CPS supplements included questions on the type of retirement plan and the employer's contribution to the plan, but the February 1995 and 1997 CPS supplements did not.

[6] The April 1993 CPS supplement included questions on specific types of defined-contribution plans, but the February 1995 and 1997 CPS supplements did not.

cause the data are obtained from plan brochures that establishments provide to BLS data collectors.[11] (See exhibit 1 for a summary of the data provided by the CPS and EBS.) Estimates of health benefits coverage from both surveys are discussed next, followed by an examination of retirement coverage.

Health benefits

CPS data on health insurance. The CPS employee benefits surveys, conducted in April 1972, May of 1979, 1983, and 1988, and April 1993, included questions on workers' health insurance coverage. No analysis of the health insurance data from the 1972 survey was published, and an electronic data file is no longer available for research, so trends that can be reviewed are those in health benefit coverage from 1979 forward.[12] The May 1979 and 1983 CPS supplements simply asked respondents whether they were included in a health insurance plan on their present job. From that information, researchers calculated plan participation rates (also called coverage rates). By April 1993, the supplement had expanded to include questions on eligibility for insurance, insurance coverage from sources other than one's own employer, and reasons eligible employees did not participate in a health insurance plan offered by their employer.[13]

Information on health insurance coverage also was collected in the February 1995, 1997, and 1999 CPS supplements on workers in contingent and alternative work arrangements. Although employee benefits were not the primary subject of these supplements, questions on health and retirement benefits were included to provide information about the quality of jobs held by workers in all types of employment arrangements, including those in traditional arrangements, contingent or "temporary" arrangements, and alternative arrangements—such as independent contractors, employees of temporary help firms, and on-call workers. As mentioned previously, the employee benefits data from the February 1999 CPS are not yet available, so only data from the February 1995 and 1997 surveys will be examined.

Respondents to the foregoing February CPS supplementary questions were asked if employed members of their household had health insurance *from any source*. Respondents who replied affirmatively were asked if the employees received the health insurance from their own employer (including a temporary-help agency or a contract company). If they did, they were asked if their employer paid for all, part, or none of the coverage.[14] Those who reported that they did not receive coverage from their employer were asked to name the source of their health insurance. This question gave respondents a second chance to report coverage from their employer, as well as to report coverage from a spouse's or other family member's insurance, from other current or previous jobs, from medicare or medicaid, from insurance the worker purchased privately, or from some other source.

For workers who had no health insurance or who participated in a plan from a source other than their own employer, survey respondents were asked if the employer offered a plan and whether the worker was eligible to participate in it. If the worker had been eligible, the respondent was asked why the worker did not participate in the employer-sponsored plan.

Despite the different wording of questions between the CPS employee benefit supplements and the CPS contingent-worker supplements, the surveys found similar results. Two-thirds of wage and salary workers (public and private sector combined) had health insurance from their own employer in May 1979, 1983, and 1988. The proportion declined to 61 percent by April 1993. Rates of coverage computed using data from the February 1995 and 1997 CPS supplements were about the same—60 percent in both periods.

Full-time workers are much more likely than part-time workers to participate in an employer-provided health insurance plan. In February 1995 and 1997, about 70 percent of full-time wage and salary workers were enrolled in a plan offered by their employer, compared with only 16 percent of part-time workers. The proportion of full-time workers participating in employer-provided health plans fell between 1979 and 1993 and was essentially unchanged after that. Rates of coverage for part-time workers changed little throughout the 1979–97 period, as the following tabulation of the percent of wage and salary workers participating in an employer-sponsored health plan shows:

	Total	*Full time*	*Part time*
1979	66	75	16
1983	66	75	17
1988	65	74	15
1993	61	71	16
1995	60	70	16
1997	60	70	16

Because the CPS collects information from employees rather than employers, it is possible to obtain information on health insurance that employees receive from sources other than their own employer, such as others' health plans. As shown in table 1, in February 1997, 79 percent of full-time, private-sector, nonagricultural wage and salary workers were eligible to receive health insurance from their employers. Another 15 percent were not eligible for coverage, and the remaining 7 percent did not provide information on eligibility.[15] Eligibility rates were much lower for part-time workers: twenty-eight percent were eligible to participate in their employer's health plan in February 1997.

Of the 58.7 million full-time, private-sector, nonagricultural wage and salary workers who were eligible to receive health insurance coverage from their employer in February 1997, 84 percent elected to do so. Another 8 percent of eligible workers chose to receive coverage through a plan of a spouse or another family member. Less than 2 percent received coverage

from another source, such as an individually purchased plan. About 6 percent were not covered by any health insurance, despite being eligible to receive coverage from their employer. The primary reason reported for not being in the employer's plan was that it was too expensive.

Eleven million full-time, private-sector, nonagricultural wage and salary workers were not eligible to participate in their employer's health insurance plan. About 39 percent of these workers participated in a health plan from some other source. The remaining 61 percent, 6.7 million workers, had no health insurance coverage at all. (See table 1.)

The February 1997 CPS supplement found that, among full-time, private-sector, nonagricultural wage and salary workers, employed men and women were about equally likely to be eligible for employer-provided health insurance. As shown in table 1, just under 8 in 10 in each group had the option of such coverage at the time of the survey. Among those who were eligible, men were more likely than women to accept coverage from their employers—87 percent compared with 80 percent. Women were more likely than men to be covered by their spouse's or another family member's insurance. Among workers who were not eligible for health insurance from their employers, men were more likely than women to have no coverage at all. (See table 1.)

Health insurance eligibility and coverage increase with age. In February 1997, about 45 percent of full-time, private-sector, nonagricultural wage and salary workers aged 16 to 19 were eligible for coverage from their employers, and a quarter of teens employed full time actually participated in their employers' health plan. (Table 2 provides information on plan participation, but not on eligibility.) Eligibility increased to 65 percent for those aged 20 to 24, and half of the group participated. Eight in 10 workers aged 25 and older were eligible for, and 7 in 10 participated in, employer-provided plans. Rates were somewhat lower for persons aged 65 and older, but nearly all persons in this group receive hospital and medical insurance through medicare, regardless of whether they are employed.[16]

EBS estimates of employer-provided health insurance. According to the EBS, medical care benefits are provided to almost three-fourths of the full-time civilian workers in the private sector and State and local governments. Participation rates are higher among State and local government workers (87 percent) than those in the private sector (71 percent). Within the private sector, employees of medium and large establishments are more likely to participate in a health insurance plan (77 percent) than are those working in small establishments (66 percent).

CPS and EBS data on health coverage. EBS estimates of health

Table 1. CPS estimates of health coverage for full-time, private-sector, nonagricultural wage and salary workers, by source of coverage, February 1997

[Numbers in thousands]

Coverage	Total	Men	Women
Total employed	74,677	43,615	31,062
Eligible for employer-provided health plan	58,700	34,396	24,304
Receive health coverage from any source	55,373	32,424	22,949
Receive coverage from employer	49,421	29,997	19,424
Receive coverage from spouse's or other family member's plan	4,930	1,842	3,088
Receive coverage from some other source	1,022	585	437
Not covered by any health plan	3,327	1,972	1,355
Not eligible for employer-provided health plan	10,984	6,258	4,726
Receive health coverage from source other than employer	4,282	2,151	2,131
Not covered by any health plan	6,702	4,108	2,594
Eligibility for employer-provided health plan unknown	4,993	2,961	2,032
Total employed (percent distribution)	100	100	100
Eligible for employer-provided health plan	79	79	78
Not eligible for employer-provided health plan	15	14	15
Eligibility for employer-provided health plan unknown	7	7	7
Eligible for employer-provided health plan (percent distribution)	100	100	100
Receive health coverage from any source	94	94	94
Receive coverage from employer	84	87	80
Receive coverage from spouse's or other family member's plan	8	5	13
Receive coverage from some other source	2	2	2
Not covered by any health plan	6	6	6
Not eligible for employer-provided health plan (percent distribution)	100	100	100
Receive health coverage from source other than employer	39	34	45
Not covered by any health plan	61	66	55

SOURCE: Current Population Survey, February 1997.

insurance participation among full-time, private-sector, nonagricultural workers are 3 to 8 percentage points higher than estimates derived from the CPS. As shown in table 3, this is true regardless of whether workers are in a union, are employed in goods-producing or service-producing industries, or are in white-collar, blue-collar, or service occupations.[17] Among State and local government employees, the pattern holds for nonunion workers, with the EBS showing 86-percent participation and the CPS 83 percent. Among government workers in unions, however, the CPS estimate of 93 percent was higher than the EBS estimate of 87 percent. One reason for the generally higher rates from the EBS may be the inclusion in the EBS participation measure of workers who have not yet satisfied their employers' length-of-service requirements needed prior to enrolling in their health insurance plan. In the CPS, such workers may not describe themselves as being covered by an employer-provided health plan.

Industry and occupation. The EBS and CPS both provide information on participation in employee benefit plans by industry and occupation. Because the size of the CPS sample is considerably larger than that of the EBS, researchers using the CPS can calculate estimates for more detailed industries and occupations than is possible by using the EBS.[18]

CPS estimates in table 4 show that participation in an employer-provided health plan was much more common among full-time State and local government employees (88 percent) than among private-sector employees (66 percent). Within the major industry categories in the private sector, workers in mining and manufacturing were the most likely to participate in an employer-provided health plan, with at least 8 in 10 employees enrolled. High coverage in communications and public utilities (86 percent) drove up the overall rate for the transportation and public utilities industry. Workers in agriculture (34 percent), construction (43 percent), and retail trade (49 percent) were the least likely to participate in an employer-provided health plan. Within retail trade, the participation rate for full-time workers in eating and drinking places, at 28 percent, was especially low. By comparison, 57 percent of full-time workers in other retail industries received health insurance from their employer.

In virtually every industry shown in the table, workers in unions had higher coverage rates than nonunion workers. As indicated in the following tabulation, EBS estimates show that union workers have higher participation rates in employer-provided health insurance plans than nonunion workers have, both in medium and large establishments and in small establishments (the union-nonunion difference in participation rates, however, is greater in small establishments):[19]

Table 2. CPS estimates of the percent of full-time, private-sector, nonagricultural wage and salary workers participating in employer-provided health plans, by age, sex, race, and Hispanic origin, February 1997

Age and sex	Total	White	Black	Hispanic origin
Both sexes				
Total, 16 years and older	66	67	63	50
16 to 19 years	26	26	19	21
20 to 24 years	50	51	46	35
25 years and older	69	70	66	54
25 to 34 years	66	67	61	52
35 to 44 years	70	71	68	53
45 to 54 years	71	72	70	56
55 to 64 years	72	72	74	63
65 years and older	55	55	—	—
Men				
Total, 16 years and older	69	70	63	51
16 to 19 years	27	28	22	23
20 to 24 years	49	50	42	31
25 years and older	72	73	66	55
25 to 34 years	68	68	62	53
35 to 44 years	74	75	68	54
45 to 54 years	75	76	71	60
55 to 64 years	74	75	73	67
65 years and older	59	57		—
Women				
Total, 16 years and older	63	63	63	49
16 to 19 years	23	24	16	16
20 to 24 years	51	51	51	41
25 years and older	65	65	65	52
25 to 34 years	63	64	60	51
35 to 44 years	65	65	68	53
45 to 54 years	66	65	69	50
55 to 64 years	69	69	74	57
65 years and older	50	51		—

NOTE: Dash indicates fewer than 75,000 workers.

SOURCE: Current Population Survey, February 1997.

Table 3. CPS and EBS estimates of the percent of full-time, nonagricultural wage and salary workers in the private sector and in State and local government receiving employer-provided health coverage, selected years

Worker category	Private sector			State and local government		
	CPS		EBS	CPS		EBS
	1995	1997	1994–95	1995	1997	1994
Total	66	66	71	87	88	87
White-collar occupations	72	72	76	—	—	87
Blue-collar occupations	65	65	73	—	—	89
Service occupations	38	40	46	—	—	84
Goods-producing industries	73	73	77	—	—	97
Service-producing industries	63	63	68	—	—	87
Union	84	84	87	93	93	87
Nonunion	64	64	68	83	83	86

NOTE: Dash indicates data are not available.

SOURCE: Current Population Survey, February 1995 and 1997; Employee Benefits Survey, 1994 and 1995.

Table 4. CPS estimates of the percent of full-time wage and salary workers participating in employer-provided health plans, by industry and union membership status, February 1997

Industry	Total employed (thousands)	Percent of employed who are union members	Percent of employed participating in employer-provided health plan		
			Total	Union member	Not a union member
Total, 16 years and older	92,707	16	70	88	66
Private sector	76,093	11	66	83	64
Agriculture	1,414	3	34	—	34
Nonagricultural industries[1]	74,680	11	66	84	64
Mining	571	5	83	—	82
Construction	4,412	17	43	59	39
Manufacturing	18,347	17	80	92	77
Durable goods	11,244	19	81	93	78
Nondurable goods	7,104	14	78	90	76
Transportation and public utilities	5,922	26	77	89	72
Transportation	3,486	26	70	84	66
Communications and other public utilities	2,436	27	86	97	82
Wholesale trade	4,140	7	72	—	71
Retail trade	11,792	7	49	78	47
Eating and drinking places	3,099	2	28	—	27
Other retail trade	8,693	9	57	80	54
Finance, insurance, and real estate	5,625	3	73	—	73
Services	23,869	6	63	76	62
Private households	344	1	10	—	10
Other services	23,525	6	64	76	63
Business, auto, and repair services	5,646	3	55	—	54
Personal services, except households	2,207	5	50	—	50
Entertainment and recreation	915	4	59	—	59
Professional services	14,728	8	70	78	69
Hospitals	3,646	11	78	82	78
Health services, except hospitals	4,092	5	59	—	59
Educational services	1,594	19	79	89	77
Social services	1,463	3	52	—	52
Other professional services	3,933	4	77	—	77
Government workers	16,613	42	87	94	82
Federal	3,366	31	84	97	78
State and local[1]	13,247	45	88	93	83

[1]Estimates shown in this table for union and nonunion workers combined may differ slightly from estimates shown in other tables for full-time wage and salary workers because of differences in the way survey responses are weighted. Questions on union membership are asked of approximately one-quarter of the CPS sample each month, whereas most other questions are asked of the full sample. Estimates in the table were tabulated using quarter-sample weights and therefore may differ slightly from estimates shown in other tables in this article that were tabulated using full-sample weights.

NOTE: Dash indicates fewer than 300,000 workers.

SOURCE: Current Population Survey, February 1997.

	Percent	
	Union	*Nonunion*
Medium and large establishments	85	74
Small establishments	94	64

Table 5 shows health plan participation rates estimated from the CPS for full-time, private-sector, nonagricultural workers, by occupation. Eight in 10 professionals and nearly as many managers were covered by employer-provided health insurance in 1997. Coverage was also relatively high among technicians (73 percent) and workers in administrative support occupations (69 percent). About two-thirds of persons employed in precision production and operator occupations were covered. Participation was lowest in service occupations (40 percent) and in farming and related jobs (35 percent).

Detailed provisions of health plans. Establishments responding to the EBS are asked to provide brochures that describe the detailed provisions of their employee benefit plans. EBS data on these plans and their provisions are available from a variety of BLS publications.[20] It would be nearly impossible to collect this type of information in the CPS, because most respondents would not know the answers to many of the specific questions on the details of their plans, and they would be unlikely to have brochures to provide to CPS interviewers.

Health care plans offered by employers can be categorized into three types, based on the method of selecting medical service providers and paying for care: traditional fee-for-service plans, preferred provider organizations (PPO's), and health maintenance organizations (HMO's). Despite the growth in alternative health plans, the traditional fee-for-service plan remains the most common. About 33 percent of full-time workers in 1994–95 participated in a fee-for-service plan, compared with 22 percent in a PPO and 18 percent in an HMO. Table 6 shows the distribution of types of plans, by major industry and occupation group. (See box, p. 10, for a more detailed description of the three types of health care plans.)

The EBS also provides information on the percentage of work-

ers covered by dental, vision, and prescription drug benefits. As the following tabulation shows, nearly half of full-time civilian employees in 1994–95 received dental care benefits from their employer, one-fifth received vision care benefits, and 70 percent received prescription drug benefits:

	Percent			
	Medical	*Dental*	*Vision*	*Drug*
Total, all civilian workers	73	45	20	70
Private:				
Medium and large establishments	77	57	24	74
Small establishments	66	28	10	60
State and local government	87	62	35	86

The extent of coverage differed in each of the three Employee Benefits Surveys (of medium and large establishments, small establishments, and State and local government), but, regardless of which survey is considered, prescription drug coverage is the most common benefit and vision care the least common.

The following are other types of EBS information that are published regularly :

- the kinds of specific medical, surgical, psychiatric, and dental procedures the plan will cover;
- the amount of any premiums, deductibles, copayments, or coinsurance that plan participants must pay;
- the maximum out-of-pocket expenses that plan participants may incur for procedures;
- the maximum lifetime benefits the plan will pay for a participant's medical expenses;
- the procedures that plan participants must follow to obtain second surgical opinions, reimbursement for emergency treatment, and so forth.

When the BLS National Compensation Survey is fully developed, the sample design, data collection, and processing procedures used to estimate participation in employee benefit plans will be linked to measures of employer costs for benefits. These cost measures currently are published by the Bureau of Labor Statistics in the series titled "Employer Costs for Employee Compensation." Employer costs for health benefits accounted for 21 percent of the cost of benefits for civilian workers in 1999.[21]

Retirement benefits

CPS data on retirement benefits. The CPS questions on participation in retirement plans changed at least slightly *each year* they were asked during the 1972–93 period, complicating historical comparisons of the estimates. Despite these changes, the proportion of full-time wage and salary workers in the private sector who participated in employer-sponsored retirement plans remained within a narrow range around 50 percent during the 1972–93 period.

The April 1993 CPS included two questions designed primarily to determine whether an employee participated in an

Table 5. CPS estimates of the number and percent of full-time, private-sector, nonagricultural wage and salary workers participating in employer-provided health plans, by occupation, February 1997

[Numbers in thousands]

Occupation	Total employed	Eligible for employer health plan		Participating in employer health plan		
		Number	Percent	Number	Percent of total employed	Percent of total eligible
Total, 16 years and older	74,677	58,700	79	49,421	66	84
Managerial and professional specialty	20,867	18,276	88	16,022	77	88
Executive, administrative, and managerial	11,706	10,066	86	8,717	74	87
Professional specialty	9,161	8,210	90	7,305	80	89
Technical, sales, and administrative support	21,914	17,802	81	14,599	67	82
Technicians and related support	2,934	2,546	87	2,153	73	85
Sales occupations	8,522	6,469	76	5,209	61	81
Administrative support, including clerical	10,458	8,787	84	7,236	69	82
Service occupations	7,362	4,131	56	2,947	40	71
Private household	266	35	13	22	8	—
Protective service	538	337	63	241	45	72
Other service occupations	6,558	3,759	57	2,683	41	71
Precision production, craft, and repair	10,310	7,651	74	6,637	64	87
Operators, fabricators, and laborers	13,928	10,706	77	9,113	65	85
Machine operators, assemblers, and inspectors	7,145	5,851	82	5,013	70	86
Transportation and material moving	3,710	2,777	75	2,403	65	87
Handlers, equipment cleaners, helpers, and laborers	3,074	2,078	68	1,696	55	82
Farming, forestry, and fishing	296	134	45	104	35	78

NOTE: Dash indicates fewer than 75,000 workers.

SOURCE: Current Population Survey, February 1997.

Types of health care plans measured in the Employee Benefits Survey

Fee-for-service plans allow patients to choose their own health care providers. The plan reimburses the worker or health care provider after services are received. Benefits are typically subject to major medical limitations, including deductibles, coinsurance, out-of-pocket expense limits, and maximum allowances.

In a *preferred provider organization* (PPO), participants are covered for medical services at a higher rate of reimbursement if they receive care from designated hospitals, physicians, laboratories, or dentists. Individuals may also choose their own provider, although usually at a lower rate of reimbursement. As in fee-for-service plans, with PPO's, benefits are typically subject to limitations, including deductibles, coinsurance, out-of-pocket expense limits, and maximum allowances that apply to many or all services.

Health maintenance organizations (HMO's) provide a fixed set of medical benefits for a prepaid fee. Most medical services either are covered in full or require patients to pay a nominal copayment, but generally restrict enrollees to specific providers. There are two types of HMO: group/staff arrangements, with services provided in central facilities, and individual practice associations, with providers working from their own offices.

employer-provided retirement plan:

1. Now I'd like to ask about retirement benefits on your job—not government programs like Social Security, but *employer-sponsored* plans. This includes regular pensions. It also includes other plans where money is accumulated in an individual account for retirement—like thrift, savings, profit-sharing, or stock plans. First, does your employer or union have any such pension or retirement plan for *anyone* in your company or organization?

Yes	○	(Go to 2.)
No	○	
Don't know	○	

2. Are you included in such a plan?

Yes	○
No	○
Don't know	○

Persons who responded affirmatively to both questions are counted as participating in an employer-provided retirement plan. Persons who did not say "yes" to both questions still could be counted as having retirement coverage if they responded affirmatively to the following question, asked later in the supplement about participation in a tax-deferred retirement plan:

Some retirement plans allow workers to make tax-deferred contributions to the plan. For example, you might choose to have your employer put part of your salary into a retirement account, and then you don't pay income taxes on this money until you take it out or retire. These plans are called by different names, including 401(k) plans, pre-tax plans, salary reduction plans, and 403(b) plans. Do you participate in a plan like this?

Yes	○
No	○
Don't know	○

It is not clear why some respondents would answer "no" to either of the two main questions on retirement coverage and subsequently answer "yes" to the question on participation in a tax-deferred retirement plan. Nevertheless, some respondents did, and they are counted as participating in an employer-provided retirement plan.[22] The May 1983 and 1988 supplements included similar questions on participation in tax-deferred retirement plans. The May 1979 supplement did not include such a question, because tax-deferred retirement plans were a new phenomenon at that time, just having been permitted under Federal law with the passage of the Revenue Act of 1978.

In the February 1995 and 1997 CPS supplements on workers in contingent and alternative work arrangements, the two main questions on retirement benefits were similar, although considerably more brief, than those asked in the April 1993 supplement:

1. Does (fill in employer's name) offer a pension or retirement plan to any of its employees?

Yes	○	(Go to 2.)
No	○	

2. Are you included in this plan?

Yes	○
No	○

An affirmative response to both questions resulted in the worker being counted as participating in an employer-sponsored retirement plan. The February CPS supplements did not include any follow-up questions specifically about participation in tax-deferred retirement plans. Despite the seemingly substantial differences in the questions asked in 1995 and 1997

Table 6. EBS estimates of the percent of full-time, nonagricultural employees participating in employer-provided health plans, by type of plan, 1994–95

Characteristic	Total	Fee for service	Health maintenance organization	Preferred provider organization
Total, private sector and State and local government, 1994–95	73	33	18	22
White-collar occupations	78	32	21	24
Blue-collar occupations	74	38	15	20
Service occupations	54	21	13	18
Union	87	42	21	22
Nonunion	70	30	17	22
Goods-producing industries	77	39	17	21
Service-producing industries	72	30	19	22
Private sector, 1994–95	71	32	17	21
White-collar occupations	76	32	20	23
Blue-collar occupations	73	39	14	19
Service occupations	46	18	11	17
Union	87	49	16	21
Nonunion	68	30	17	21
Goods-producing industries	77	39	17	20
Service-producing industries	68	29	17	21
Medium and large establishments, 1995	77	28	21	26
Small establishments, 1994	66	36	13	16
State and local government, 1994	87	33	26	26
White-collar occupations	87	34	26	26
Blue-collar occupations	89	26	27	34
Service occupations	84	35	23	23
Union	87	31	30	22
Nonunion	86	35	21	30
Goods-producing industries	97	34	12	51
Service-producing industries	87	33	26	26

NOTE: Sums of percentages participating in each type of health plan do not equal total because about 1 percent of full-time workers are covered by other plans, primarily exclusive-provider organizations, which are groups of hospitals and physicians that contract to provide medical services. Medium and large establishments are those with 100 or more workers. Small establishments have fewer than 100 workers.

SOURCE: Employee Benefits Survey, 1994 and 1995.

compared with those asked in 1993, there was little difference in the estimated proportion of employed private, nonagricultural wage and salary workers participating in employer-provided retirement plans, as shown in the following tabulation:

	Percent		
	1993	*1995*	*1997*
Total employed	44	42	43
Full time	51	49	50
Part time	13	12	13

EBS data on retirement plans. Information gathered from employers in the 1994–95 EBS shows that 66 percent of all full-time workers in private industry and State and local government participate in employer-sponsored retirement plans. Participation among government workers is higher (95 percent) than those in private industry (60 percent).

CPS and EBS estimates of retirement plan coverage. CPS estimates of participation in retirement plans are considerably lower than estimates derived from the EBS. Among full-time workers, the gap in estimates between the two surveys is 10 or more percentage points, regardless of whether the workers are union or nonunion, in goods-producing or service-producing industries, or in white-collar, blue-collar, or service occupations. (See table 7.) Furthermore, the gap in retirement coverage between the surveys is larger than that found for health coverage.

There also are large differences between the surveys in the estimated retirement plan participation rates for workers in State and local governments. According to the CPS, 86 percent of full-time State and local government employees participated in an employer-provided retirement plan in 1995, and 87 per-

Table 7. CPS and EBS estimates of the percent of full-time, nonagricultural wage and salary workers participating in employer-provided retirement plans, selected years

Worker category	Private sector			State and local government		
	CPS		EBS	CPS		EBS
	1995	1997	1994–95	1995	1997	1994
Total	49	50	60	86	87	95
White-collar occupations	56	57	67	—	—	95
Blue-collar occupations	45	46	60	—	—	95
Service occupations	22	23	35	—	—	93
Goods-producing industries	55	56	70	—	—	99
Service-producing industries	45	46	56	—	—	95
Union	75	73	86	92	93	93
Nonunion	44	46	56	82	82	96

NOTE: Dash indicates data are not available.

SOURCE: Current Population Survey, February 1995 and 1997; Employee Benefits Survey, 1994 and 1995.

cent participated in 1997. By comparison, the participation rate estimated from the 1994 EBS was 95 percent. Among unionized workers, however, there was essentially no difference: both the CPS and the EBS show that about 93 percent of unionized State and local government employees participated in a retirement plan. Among nonunion public-sector workers, 82 percent participated in a plan according to the CPS, compared with 96 percent according to the EBS.

It is difficult to explain why the CPS estimates of retirement plan coverage systematically tend to be lower than those derived from the EBS. It also is not clear why the gap between the surveys is larger for retirement benefits than for health benefits. If one assumes that the EBS estimates are closer to the true coverage rates that exist in the workforce, then it may be that the underestimates from the CPS result from some respondents' lack of knowledge about their own benefits coverage or the benefits coverage of other household residents for whom they responded. More respondents may be able to answer questions correctly about health coverage than about retirement coverage because health benefits presumably are used more frequently by a larger number of CPS respondents. Unless a worker expects to retire in the fairly near future and thus may think about or discuss retirement issues frequently, many CPS respondents may know little, if anything, about the worker's participation in an employer-provided retirement plan. Furthermore, as with health care, the EBS participation measure includes workers who have not yet satisfied their employer's length-of-service requirement for participation in the retirement plan. These reasons for the gap in estimates between the CPS and EBS are speculative, but regardless of the reason, researchers, policymakers, and other users of the data should be aware that the estimated coverage rates from the EBS are considerably higher than those from the CPS.

Demographic data on retirement coverage. As shown in table 8, retirement plan participation rates estimated from the CPS are low for full-time, private-sector, nonagricultural wage and salary workers aged 16 to 19 and 20 to 24. Participation rates then rise with age for men and women, until peaking at 60 percent among workers aged 45 to 54 and 55 to 64. Full-time workers aged 65 and older are only about two-thirds as likely as 45- to 54-year-olds and 55- to 64-year-olds to participate in a retirement plan. Overall, men are slightly more likely than women to participate in a plan, although the gap has narrowed considerably since the early 1970s, as the participation rate for men edged down slightly while the rate for women rose by 10 percentage points. The gap between men's and women's retirement plan participation rates is considerably larger among workers aged 45 and older than it is among workers in younger age groups. Whites are slightly more likely than blacks to participate in a retirement plan, and both groups are considerably more likely than Hispanics to participate.

Industry and occupation. The CPS data in table 9 show that full-time workers in manufacturing and in finance, insurance, and real estate had the highest retirement plan participation rate (62 percent) among the major private, nonagricultural industries in 1997. The participation rate for workers in transportation and public utilities (61 percent) was also high, although there was a sizable gap in rates between full-time workers in transportation (49 percent) and those in communications and public utilities (77 percent). Full-time workers in retail trade (31 percent) and construction (29 percent) had the lowest retirement plan participation rates in the private, nonagricultural sector. Workers in those industries were about 3 times as likely as agricultural workers were to participate in a plan. Full-time workers in government were considerably more likely than those in the

private sector to participate in a retirement plan. The rate for Federal employees was 88 percent in 1997, while 87 percent of State and local government workers participated in a retirement plan.[23]

Table 10 shows retirement plan participation rates estimated from the CPS for full-time, private-sector, nonagricultural workers, by occupation. Sixty-five percent of workers in professional specialty occupations participated in a retirement plan, as did 60 percent of workers in executive, administrative, and managerial occupations. Fifty-nine percent of technicians and related support workers and 54 percent of administrative support workers (including clerical workers) participated in a plan. Just under half of full-time sales workers; operators, fabricators, and laborers; and precision production, craft, and repair workers participated in a plan. Less than a quarter of workers in service occupations had retirement plan coverage.

Characteristics of retirement plans. In addition to the questions used to determine whether workers participated in retirement plans, the May 1988 and April 1993 CPS supplements included questions about the characteristics of those plans.[24]

Table 8. CPS estimates of the percent of full-time, private-sector, nonagricultural wage and salary workers participating in employer-provided retirement plans, by age, sex, race, and Hispanic origin, February 1997

Age and sex	Total	White	Black	Hispanic origin
Both sexes				
Total, 16 years and older	50	51	45	28
16 to 19 years	11	11	8	7
20 to 24 years	22	22	21	14
25 years and older	54	55	49	32
25 to 34 years	46	47	40	27
35 to 44 years	57	58	53	34
45 to 54 years	60	61	56	36
55 to 64 years	60	60	58	36
65 years and older	40	41	—	—
Men				
Total, 16 years and older	51	52	46	28
16 to 19 years	13	12	—	10
20 to 24 years	21	22	20	13
25 years and older	55	56	50	31
25 to 34 years	46	47	42	26
35 to 44 years	58	59	53	32
45 to 54 years	63	64	56	37
55 to 64 years	62	64	59	37
65 years and older	43	43	—	—
Women				
Total, 16 years and older	48	49	45	29
16 to 19 years	9	9	6	0
20 to 24 years	22	23	22	17
25 years and older	52	53	49	33
25 to 34 years	46	47	38	29
35 to 44 years	55	55	54	37
45 to 54 years	56	56	55	33
55 to 64 years	56	55	58	34
65 years and older	35	37	—	—

NOTE: Dash indicates fewer than 75,000 workers.

SOURCE: Current Population Survey, February 1997.

Table 9. CPS estimates of the percent of full-time wage and salary workers participating in employer-provided retirement plans, by industry and union membership status, February 1997

Industry	Total	Union member	Not a union member
Total, 16 years and older	55	82	50
Private sector	49	73	46
Agriculture	11	—	10
Nonagricultural industries[1]	49	73	46
Mining	58	—	58
Construction	29	58	23
Manufacturing	62	79	59
Durable goods	64	82	59
Nondurable goods	61	72	59
Transportation and public utilities	61	84	52
Transportation	49	76	40
Communications and other public utilities	77	95	71
Wholesale trade	51	—	49
Retail trade	31	64	29
Eating and drinking places	10	—	10
Other retail trade	39	67	36
Finance, insurance, and real estate	62	—	62
Services	45	66	44
Private households	1	—	1
Other services	46	66	45
Business, auto, and repair services	33	—	33
Personal services, except private households	24	—	24
Entertainment and recreation services	26	—	25
Professional services	56	76	54
Hospitals	72	72	72
Health services, except hospitals	42	—	41
Educational services	74	95	69
Social services	26	—	24
Other professional services	60	—	60
Government workers	87	93	83
Federal	88	95	85
State and local[1]	87	93	82

[1] Estimates shown in this table for union and nonunion workers combined may differ slightly from estimates shown in other tables for full-time wage and salary workers because of differences in the way survey responses are weighted. Questions on union membership are asked of approximately one-quarter of the CPS sample each month, whereas most other questions are asked of the full sample. Estimates in this table were tabulated using quarter-sample weights and therefore may differ slightly from estimates shown in other tables in this article that were tabulated using full-sample weights.

NOTE: Dash indicates fewer than 300,000 workers.

SOURCE: Current Population Survey, February 1997.

One key feature of retirement plans is the type of plan. Broadly speaking, there are two types of retirement plans: defined-benefit and defined-contribution plans. Defined-benefit plans legally obligate employers to pay retirees an annuity that is based on a specified formula. The size of the benefit usually depends on the retiree's preretirement salary and number of years of service with the employer. The employer is responsible for making contributions to the pension fund, investing the fund's assets, and paying benefits. The employer also bears the risk if investments perform poorly.

Defined-contribution plans typically specify how much an

employer has agreed to contribute to each employed participant's individual account, but do not stipulate the amount of benefits that will be paid during retirement.[25] Many defined-contribution plans also permit employees to contribute to their accounts, often on a tax-deferred basis. The size of the benefit each participant receives during retirement depends on the amount the employer and employee contributed to the plan and the investment earnings on the contributions. There are several types of defined-contribution plans, including tax-deferred 401(k), 403(b), and Section 457 plans, which are named after the sections of the U.S. Internal Revenue Code that permit them to be established. Other types of defined-contribution plans include deferred profit-sharing plans, money purchase pension plans, employee stock ownership plans, and stock bonus plans.

EBS estimates of retirement plan coverage show that 42 percent of full-time workers are covered by a defined-benefit plan, compared with 39 percent by a defined-contribution plan. Fifteen percent participate in both types of plans. Nearly all State and local government workers with retirement coverage participate in a defined-benefit plan. Unionized workers in the private sector are much more likely to participate in a defined-benefit plan than in a defined-contribution plan. (See table 11.)

There is some doubt concerning whether respondents to household surveys such as the CPS are able to provide information on the types of retirement plans they participate in as accurately as respondents to establishment surveys. A look at the data suggests that CPS responses in this regard are not without problems. In the April 1993 CPS, 53 percent of private-sector retirement plan participants (full and part time combined) reported that they were participating in a defined-benefit plan, 46 percent responded that they were in an "individual account" or defined-contribution plan, 7 percent said that they participated in some "other" type of plan, and 12 percent did not know the type of plan they were in. (The sum of these percentages is greater than 100, because some workers participate in more than one type of plan.) By comparison, estimates from the EBS show that 55 percent of private-sector retirement plan participants in 1994–95 were in a defined-benefit plan, a figure similar to the 53 percent estimated from the April 1993 CPS. For defined-contribution plans, however, estimates from the two surveys differ widely. According to the EBS, 73 percent of private-sector retirement plan participants were in a defined-contribution plan, a considerably higher proportion than the CPS estimate (46 percent).

The large discrepancy in the estimated proportions participating in defined-contribution retirement plans signals one problem with the CPS responses, but there also are several other problems. First, under Internal Revenue Service regulations, all retirement plans are either defined-benefit or defined-contribution plans; there is no "other" plan type. The implausible "other" responses, along with the proportion of participants who did not know the type of plan they were in, compose nearly a fifth of the CPS respondents who participated in employer-provided retirement plans in April 1993. These problems raise doubts about the reliability of CPS information on the types of retirement plans in which workers participate. Some CPS respondents may not have sufficient knowledge of employee benefit plans and terminology to provide detailed information about their provisions. And the problem may be more acute with proxy responses.

Using brochures obtained from establishments, the EBS ascertains a variety of details about retirement plans. This information is nearly impossible to obtain in the CPS. EBS data on the details of these plans are available from a variety of BLS publications.[26] Among such details are the following:

- age and service eligibility requirements for retirement
- formulas used to determine the payments retirees receive from defined-benefit plans
- how defined-benefit plan payments are coordinated with Social Security payments
- eligibility and benefit levels for disability retirement
- payments to survivors after the employee's or retiree's death
- increases in postretirement benefits
- specific types of defined-contribution plans, such as savings and thrift, deferred profit-sharing, or stock plans
- methods used to determine the amount of employer contributions to defined-contribution plans
- vesting schedules that determine how much employees can receive from defined-benefit or defined-contribution plans if they leave the employer before retirement

As described earlier, the BLS National Compensation Survey that is currently being developed will link information on plan participation and characteristics with data on employer costs. Such cost information currently is provided in the series on Employer Costs for Employee Compensation.[27]

Tax-deferred retirement plans. Despite the problems with the CPS data on participation in defined-benefit and defined-contribution retirement plans, the questions in the April 1993 supplement that asked specifically about participation in tax-deferred retirement plans may provide useful information. Respondents may know more about these tax-deferred plans because, unlike determining their participation in many other types of retirement plans, workers must actively choose whether to participate in tax-deferred retirement plans and how much to contribute to them. Workers who participate in such plans also frequently are reminded of their participation because their pay stubs may indicate the amount deducted from their pay and invested in the tax-deferred plan. Many plan participants also receive monthly, quarterly, or annual financial statements that indicate how much money is in their account, as well as the amount of contributions and investment performance since the previous statement. The first four CPS questions on tax-deferred retirement plans read as follows (the first question

was presented earlier in this article):

1. Some retirement plans allow workers to make tax-deferred contributions to the plan. For example, you might choose to have your employer put part of your salary into a retirement account, and then you don't pay income taxes on this money until you take it out or retire. These plans are called by different names, including 401(k) plans, pre-tax plans, salary reduction plans, and 403(b) plans. Do you participate in a plan like this?

Yes	○	(Go to 3.)
No	○	(Go to 2.)
Don't know	○	

2. Does your employer offer you a plan like this?

Yes	○	(Go to 4.)
No	○	
Don't know	○	

3. Approximately what percent of your gross pay will you contribute to the plan this year?

_____%	○	(Go to 4.)
Don't know	○	
Refused	○	

4. If you were to contribute $100 to this plan, how much would your employer contribute?

$_____	○
Nothing	○
Would contribute something, but don't know how much	○
Contribution rate varies	○
Don't know	○

The first question provides information on the number of workers who participate in tax-deferred retirement plans. As table 12 shows, 28 percent of full-time, private-sector, nonagricultural wage and salary workers participated in a tax-deferred retirement plan in April 1993, according to the CPS. The comparable EBS estimate for 1994–95 is 38 percent. As with the estimates on participation in all types of retirement plans, the CPS estimate for participation in tax-deferred plans is considerably lower than the EBS estimate. Again, it is not clear why this difference occurs, although one could speculate that employers are better able to provide accurate information on participation in retirement plans than are workers or their proxy respondents.

In conjunction with the first CPS question on tax-deferred retirement plans, the second question provides information on the number of workers who are *eligible* to participate in a plan, regardless of whether they actually contribute to it. Together, these two questions can be used to determine the proportion of eligible workers who choose to contribute to a plan. The EBS, by comparison, does not provide a direct measure of workers who are eligible to participate.[28] According to the CPS, 40 percent of full-time, private-sector, nonagricultural wage and salary workers were eligible to participate in a tax-deferred retirement plan in April 1993, and of those eligible, 68 percent actually chose to contribute to the plan. Readers should keep in mind that the CPS estimate of eligible workers may have its flaws, because some respondents—especially proxies—may not be aware that a worker is eligible for a plan if he or she does not actually contribute to it. Thus, the CPS may understate eligibility even more than it appears to understate participation. Nevertheless, it is useful for employers, public policymakers, and others to have some measure of how many workers who were offered a tax-deferred retirement plan take advantage of the opportunity to invest in it.

The third CPS question on tax-deferred retirement plans provides information on the percentage of pay that participants contributed to the plan. Among full-time participants in April 1993, only 73 percent responded with the percentage of their pay that they contributed to the plan; the remaining 27 percent either did not know the percentage or did not respond. There is no way to verify the accuracy of the responses of participants who did respond with a percentage, but some undoubtedly are inaccurate, especially when obtained from proxies. The EBS used to include a question on the average percentage of pay that all participants in an establishment contributed to their tax-deferred retirement plan. As with the CPS question, the nonresponse rate was high, and many of the responses that employers provided may not have been accurate. Apparently, many employers did not have the information organized in a way that would enable them to provide an accurate response easily. Because of these problems, the question was eliminated from the EBS.

The fourth CPS question on tax-deferred retirement plans asks whether employers supplement employee contributions and, if so, the amount of the employer contribution. As shown in table 12, 68 percent of full-time plan participants received a contribution from their employer, according to the April 1993 CPS. The estimate from the 1994–95 EBS, by comparison, was 85 percent. Many CPS respondents may not be familiar with the details concerning contributions to a plan from their employers, whereas the documentation that establishments provide to EBS data collectors usually describes in detail whether and how much the employer contributes to a plan. This disparity suggests that the EBS information on employer contributions is more accurate than that of the CPS.

Linked surveys

It is clearly beneficial for researchers, policymakers, and others to have information on the relationship between participa-

Table 10. CPS estimates of the number and percent of full-time, private-sector, nonagricultural wage and salary workers participating in employer-provided retirement plans, by occupation, February 1997

[Numbers in thousands]

Occupation	Total employed	Participating in retirement plan	
		Number	Percent
Total, 16 years and older	74,677	37,206	50
Managerial and professional specialty	20,867	12,959	62
Executive, administrative, and managerial	11,706	6,999	60
Professional specialty	9,161	5,961	65
Technical, sales, and administrative support	21,914	11,234	51
Technicians and related support	2,934	1,716	59
Sales occupations	8,522	3,889	46
Administrative support, including clerical	10,458	5,628	54
Service occupations	7,362	1,696	23
Private household	266	10	4
Protective service	538	148	28
Other service occupations	6,558	1,538	23
Precision production, craft, and repair	10,310	4,876	47
Operators, fabricators, and laborers	13,928	6,390	46
Machine operators, assemblers, and inspectors	7,145	3,515	49
Transportation and material moving	3,710	1,720	46
Handlers, equipment cleaners, helpers, and laborers	3,074	1,156	38
Farming, forestry, and fishing	296	51	17

SOURCE: Current Population Survey, February 1997.

tion in employee benefit plans and the sex, age, race, marital status, and other demographic characteristics of workers. Demographic information is best obtained from household surveys like the CPS. As the previous sections have shown, however, the CPS is not as well suited as the EBS to provide accurate information on employee benefits. Accordingly, rather than asking household respondents to provide information on employee benefits and asking employers to provide demographic information, it may be preferable to ask each source for the information that they can provide more accurately. Some researchers have taken such an approach and developed data sources that combine information obtained from both employers and their workers. The development of these linked employer-employee data sets has increased in the United States in recent years, although some other industrialized countries are more advanced than the United States in that regard. Indeed, a May 1998 conference on linked employer-employee data, held in Washington, DC, attracted social scientists and statisticians from more than 20 countries.[29]

Linked employer-employee data sets take a variety of forms. Some involve linking existing household survey data with existing administrative or survey data from establishments. Other data sets have been designed specifically to collect information from employers as well as employees. The administrators of such surveys may sample and gather information from establishments and subsequently ask questions of a sample of employees within those establishments. The 1995 BLS Survey of Employer-Provided Training (SEPT95) was designed in this way.[30] A 1993 survey sponsored by the W. E. Upjohn Institute for Employment Research used the same approach to obtain information from employers and workers regarding on-the-job training, wages, schooling, experience, and employee benefits.[31]

An alternative approach to designing linked surveys is to sample households and ask the individuals in them to provide information about themselves, along with the names, addresses, and telephone numbers of their employers. With the consent of the employees, data collectors then contact the employers and gather additional information from them. The BLS National Longitudinal Surveys (NLS) have used this approach in a number of instances. Recently, information on participation in re-

Table 11. EBS estimates of the percent of full-time, nonagricultural employees participating in employer-provided retirement plans, 1994–95

Characteristic	Total	Defined benefit	Defined contribution
Total, private sector and State and local government, 1994–95	66	42	39
White-collar occupations	73	46	44
Blue-collar occupations	62	38	38
Service occupations	47	35	19
Union	89	84	23
Nonunion	60	32	42
Goods-producing industries	70	45	48
Service-producing industries	64	41	35
Private sector, 1994–95	60	33	44
White-collar occupations	67	35	53
Blue-collar occupations	60	35	40
Service occupations	35	21	21
Union	86	78	36
Nonunion	56	26	46
Goods-producing industries	70	45	48
Service-producing industries	56	28	42
Medium and large establishments, 1995	80	52	55
Small establishments, 1994	42	15	34
State and local government, 1994	95	91	9
White-collar occupations	95	91	9
Blue-collar occupations	95	91	9
Service occupations	93	90	9
Union	93	94	4
Nonunion	96	88	13
Goods-producing industries	99	80	20
Service-producing industries	95	91	9

NOTE: Medium and large establishments are those with 100 or more workers. Small establishments have fewer than 100 workers.

SOURCE: Employee Benefits Survey, 1994–95.

Table 12. CPS and EBS estimates of the number and percent of full-time, private-sector, nonagricultural wage and salary workers participating in employer-provided tax-deferred defined-contribution retirement plans, selected years

[Numbers in thousands]

Participation in tax-deferred retirement plan	Employee Benefits Survey			Current Population Survey, April 1993
	Total, 1994–95	Medium and large establishments, 1995	Small establishments, 1994	
Total employees	69,284	33,374	35,910	68,874
Participate in tax-deferred plans	26,288	18,250	8,038	19,044
With employer contributions	22,261	15,156	7,105	13,044
No employer contributions[1]	4,027	3,094	933	6,000
Do not participate in tax-deferred plans	42,996	15,124	27,872	49,830
Percent of employees	100	100	100	100
Participate in tax-deferred plans	38	55	22	28
With employer contributions	32	45	20	19
No employer contributions[1]	6	9	3	9
Do not participate in tax-deferred plans	62	45	78	72

[1] The Current Population Survey estimate of the number of participants in tax-deferred retirement plans who received no employer contributions includes participants who explicitly said their accounts received no employer contributions, as well as those who refused to answer or did not know whether the employer contributed.

NOTE: Medium and large establishments are those with 100 or more workers. Small establishments have fewer than 100 workers.

SOURCE: Employee Benefits Survey, 1994 and 1995; Current Population Survey, April 1993.

tirement plans was collected from respondents to the NLS Mature Women's survey, and detailed information about the plans was subsequently obtained from employers.[32]

Linked employer-employee data sets have two primary objectives. One objective is to compare how employers and employees respond to the same questions, thereby providing researchers with insight on the accuracy of responses to their surveys. A 1983 study, for example, examined two different linked data sets that included information from employers and their workers on the employers' industries, the workers' occupations, coverage under a union contract, weekly hours worked, and wages.[33]

Another, more common, objective of linked data sets is to obtain the kinds of information from employers and employees that each can provide more easily and accurately. Ideally, the resulting data set could afford more accurate information without having to ask household or establishment respondents questions that they are not well equipped to answer. In addition to improving accuracy and reducing the burden on respondents—by asking individuals and establishments only those questions they can most easily and accurately answer—linked data sets also provide researchers and policymakers with insights into the interactions between employers and workers. Information on these interactions can be useful for investigating a variety of research questions, such as how employers and workers negotiate pay rates.[34] Employer-employee interactions cannot be measured using traditional household or establishment data sources alone.

Linked data sets have their advantages over traditional household and establishment information sources, but they also have their problems. For example, successfully linking existing household and establishment data requires having sufficient information to identify employers from the one survey with household members from the other, but such identifying information is not always available or complete. Moreover, surveys designed specifically to collect information from employers and their workers typically cost more to administer than traditional surveys, because employers and employees both must be contacted. Accordingly, response rates often are lower, because the need to contact both kinds of respondents increases the probability that sampled establishments or individuals may be unable or unwilling to respond.[35] Also, as with traditional surveys, linked surveys present concerns about the privacy of participants and the confidentiality of their responses. And such concerns are heightened in linked surveys because, for instance, employees may feel uncomfortable about having their employers contacted, and employers likewise may not want their employees to be contacted.

THIS ARTICLE HAS IDENTIFIED SOME OF THE DIFFICULTIES that are inherent in collecting detailed information on health and retirement benefits in the household-based Current Population Survey. The establishment-based Employee Benefits Survey provides more accurate information on employee benefits, but it is not well suited to providing information on workers' demographic characteristics or, for example, health insurance that they receive from sources other than their own employers. If the difficulties with linked surveys regarding cost, response rates, and confidentiality can be resolved, such a survey design may enable researchers to

combine the best attributes of household and establishment data sources to obtain more accurate and useful information on employee benefits. No such linkage is planned by the Bureau of Labor Statistics at this time, however. □

Notes

[1] For a more complete discussion of the elements of job quality, including employee benefits, see Joseph R. Meisenheimer II, "The services industry in the 'good' versus 'bad' jobs debate," *Monthly Labor Review*, February 1998, pp. 22–47.

[2] *Employer Costs for Employee Compensation—March 1999*, USDL 99–173 (U.S. Department of Labor, June 24, 1999).

[3] See, for example, Sylvester Schieber and John Shoven, eds. *Public Policy Toward Pensions* (Cambridge, MA, MIT Press, 1997).

[4] The importance of having accurate information to develop public policy on health care is discussed by Linda T. Bilheimer and Robert D. Reischauer in "Confessions of the estimators: Numbers and health reform," *Health Affairs*, Spring 1995, pp. 37–55.

[5] For more information on the National Compensation Survey, see Harriet G. Weinstein, "Overview of the NCS: Summer 1998," *Compensation and Working Conditions*, Summer 1998, pp. 41–44.

[6] All of these supplements included questions on employer-provided health and retirement benefits. The May 1988 and April 1993 supplements also included questions on short- and long-term disability benefits, which are not analyzed in this article.

[7] The March supplement to the CPS has included questions on health insurance coverage since 1980. These questions focus on coverage from all sources and have provided less reliable information than the supplements on employer-provided health insurance benefits. See Mark C. Berger, Dan A. Black, and Frank A. Scott, "How Well Do We Measure Employer-Provided Health Insurance Coverage?" *Contemporary Economic Policy*, July 1998, pp. 356–67.

[8] Information on educational levels also appears to be more easily obtained from household surveys than from establishment sources. Information on educational attainment is available each month from the CPS, and estimates are published in the monthly news release, *The Employment Situation*, and in the BLS publication, *Employment and Earnings*.

BLS recently asked employers in four metropolitan areas to provide information on educational attainment in test studies of the National Compensation Survey. These tests showed that employers were unable to provide information on educational attainment for 7 in 10 workers. Although it may surprise some readers that employers so often were unable to provide information about the educational attainment of their workers, it is important to remember that employers may not always find such information relevant. For example, many service and laborer occupations do not require academic credentials to perform the job adequately. Even in specialized trades like plumbing and carpentry, work experience in the occupation is far more relevant to employers than is educational attainment. See John E. Buckley, "Collecting Data on Human Capital Variables," *Compensation and Working Conditions*, Fall 1998, pp. 29–31.

[9] In addition to the employment estimates from the CPS, employment estimates also are available from the BLS Current Employment Statistics (CES) program, a monthly survey of nonfarm establishments that obtains information on employment, hours, and earnings by industry. To illustrate the differences that can occur between CPS and CES employment estimates for detailed industries, consider the personnel supply services industry, which consists largely of firms that provide temporary employees to establishments in other industries. The 1998 annual average employment level estimated from the CPS for this industry was about 1 million. The employment estimate from the CES program was 3.2 million. In part, this large discrepancy stems from the different treatment of multiple jobholders in each survey. Persons who are paid by more than one "temporary-help" or "staffing" firm during a survey reference period are counted only once in the CPS; in the CES program, these individuals are counted in the employment records of each staffing firm for which they worked. A larger part of the discrepancy probably results from the different way in which the industry is reported in the two surveys. Many CPS respondents may report the industry of the client to which a temporary worker was assigned, rather than that of the staffing firm which provided the worker to the client. By comparison, respondents to the CES program report the industry of the establishment that pays the worker—that is, the staffing firm. Thus, if one wants to know how many people are employed in the personnel supply services industry, establishment data are a more reliable source of information than the CPS.

[10] This does not, of course, imply that proxy responses are always unreliable. In fact, for many important items in the CPS, such as a person's employment or unemployment status, proxy responses may be as reliable as self-responses, at least when an adult respondent answers questions about the labor force activity of another adult in the household. Assessing the accuracy of a response is more ambiguous when the response is from an adult who is answering questions about the labor force activity of youths in the household. For a more detailed discussion of proxy responses in the CPS, see Brian A. Kojetin and Judith M. Tanur, "Proxies for Youths and Adults: Communication and Reports of Job Search," *1996 Proceedings of the Section on Survey Research Methods*, vol. 1 (Alexandria, VA, American Statistical Association, 1997), pp. 254–59. See also Norman Bowers, "Youth labor force activity: alternative surveys compared," *Monthly Labor Review*, March 1981, pp. 3–17. Without proxy responses, the CPS would cost far more to administer because CPS interviewers typically would have to contact sampled households several times to obtain information from each resident of the household. The only alternative to using proxy responses or incurring higher costs would be to obtain no information at all for some household residents.

[11] In addition to health insurance and retirement plan provisions, the EBS compiles data on employee work schedules, paid leave, disability benefits, life insurance, flexible benefits plans, and reimbursement accounts, as well as a variety of emerging benefits.

[12] The April 1972 CPS supplement was a mail survey that examined the benefits coverage of full-time workers. Data on retirement benefits were examined in Walter W. Kolodrubetz and Donald M. Landay, "Coverage and Vesting of Full-Time Employees Under Private Retirement Plans," *Social Security Bulletin*, November 1973. Health benefits data from the April 1972 CPS supplement were not analyzed in that article.

[13] Retirement plan coverage rates from 1972 to 1993 were published in *Pension and Health Benefits of American Workers: New Findings from the April 1993 Current Population Survey* (U.S. Department of Labor, Social Security Administration, Small Business Administration, and Pension Benefit Guaranty Corporation, 1994).

[14] The EBS measures, among other things, employee benefit programs sponsored by employers who pay some share of the costs.

[15] The high nonresponse rate on this question partly reflects some proxy respondents' lack of knowledge about health plan options of other household members.

[16] *Databook on Employee Benefits*, 4th ed. (Washington, DC, Employee Benefit Research Institute, 1997), p. 301.

[17] The EBS and the CPS define union membership differently. In the EBS, the establishment identifies the number of workers in union occupations. Those occupations fulfill the following requirements: a labor organization must be recognized as the bargaining agent for all workers in the occupation; wage and salary rates are determined through collective bargaining and negotiations; and settlement terms, which must include earnings provisions and may include benefit provisions, are embodied in a signed,

mutually binding collective bargaining agreement. In the CPS, union members are respondents who replied affirmatively to the question, "On this job, (is/are) (name/you) a member of a labor union or of an employee association similar to a union?"

[18] The CPS sample currently includes 50,000 households each month. The 1995 Employee Benefits Survey of Medium and Large Private Establishments sampled 3,462 nonagricultural establishments with 100 or more workers. The 1994 Employee Benefits Survey of Small Private Establishments sampled 2,135 nonagricultural establishments with fewer than 100 employees. The 1994 Employee Benefits Survey of State and Local Governments sampled 860 government establishments.

[19] An establishment is an economic unit—such as a factory, a mine, a store, or an office—that produces goods or provides services, typically in a single physical location. An establishment is distinct from a firm, which may be in a single physical location or may include multiple establishments at different locations. The EBS samples are drawn from a list of establishments, not firms, and readers should be aware that some participants in the survey of small establishments may in fact be a part of large firms.

[20] See, for example, *Employee Benefits in Medium and Large Private Establishments, 1995*, Bulletin 2496 (Bureau of Labor Statistics, April 1998); *Employee Benefits in Small Private Establishments, 1994*, Bulletin 2475 (Bureau of Labor Statistics, April 1996); and *Employee Benefits in State and Local Governments, 1994*, Bulletin 2477 (Bureau of Labor Statistics, May 1996).

[21] The Employer Costs for Employee Compensation series provides estimates by industry and major occupational group, as well as by bargaining status, region, and establishment size. Not surprisingly, the groups with the highest employer costs for health insurance mirror those categories with the higher participation rates. The data on incidence of participation that will be produced annually from the National Compensation Survey will be based on a sample that is about double the current EBS sample. This should enable the Bureau to publish additional geographic, industrial, occupational, and other detailed information and allow for an analysis of the link between plan participation and cost. (See *Employer Costs for Employee Compensation—March 1999*, cited in note 2.)

[22] Section 401(k) of the Internal Revenue Code authorizes private-sector, profitmaking firms (and some nonprofit organizations) to offer tax-deferred retirement plans for their workers. Section 403(b) authorizes such retirement plans for nonprofit organizations, and Section 457 authorizes plans for employees of State and local governments. Some tax-deferred retirement plans are funded solely by employee contributions, and that might explain why some respondents answered "no" to either of the first two questions about participation in retirement plans and subsequently answered "yes" to the question on participation in a tax-deferred retirement plan. When answering the first two questions, some respondents may not have considered tax-deferred plans that were sponsored, but not funded, by their employers. When, later in the supplement, these respondents were asked whether they had the option to contribute money to a plan on a tax-deferred basis, they correctly answered affirmatively. Even if a tax-deferred retirement plan does not receive employer funding, it still benefits employees because the employer provides a convenient vehicle through which employees can invest for retirement. More importantly, if the employer had not established the plan and employees instead invested their money in an after-tax mutual fund or savings account, their contributions would be subject to taxation at the time they were made, and their investment earnings would be subject to taxation at the time they were earned. Under an employer-provided plan, employees could defer paying taxes on their contributions and earnings until retirement. Even for employees who are eligible to invest in pretax individual retirement accounts at banks or other financial institutions, the limit on how much they can invest each year is much lower than under an employer-provided plan.

[23] Administrative figures from the Office of Personnel Management indicate that about 96 percent of Federal employees participated in either the Civil Service Retirement System or the Federal Employees Retirement System in 1997. The considerably lower CPS estimate of 88-percent participation among Federal employees may result from a variety of possible response errors in that survey. For example, some CPS respondents may not be aware of a household member's participation in a Federal employee retirement plan. Another possibility is that some noncovered workers employed by a private-sector contractor to the Federal Government may be classified incorrectly as Federal employees.

[24] The February 1995 and 1997 supplements did not include questions on plan characteristics.

[25] For detailed descriptions of the various types of plans and the calculation of benefits, see Ann C. Foster, "Factors Affecting Employer-provided Retirement Benefits," *Compensation and Working Conditions*, Winter 1998, pp. 10–17. See also William J. Wiatrowski, "Factors affecting retirement income," *Monthly Labor Review*, March 1993, pp. 25–35.

[26] See note 20 for references.

[27] A comparison of EBS data with data from the Employer Costs for Employee Compensation series indicates that employer expenditures for retirement plans are higher in groups for which coverage is more common. In the private sector, employer expenditures were higher for union workers, full-time workers in goods-producing industries, and workers in larger establishments (500 or more employees). Expenditures for union workers' defined-benefit plans were greater than those for their defined-contribution plans. Similarly, employer costs in larger establishments were higher for defined-benefit plans than for defined-contribution plans. Ultimately, the redesigned National Compensation Survey will provide data that will enable researchers to analyze more rigorously the relationship between employer costs and employee participation for a variety of employee benefits. See Harriet G. Weinstein, "Linking Retirement Plan Measures," *Compensation and Working Conditions*, Spring 1998, pp. 52–55.

[28] For a discussion of how the EBS estimates a worker's eligibility for, and participation in, a retirement plan, see William J. Wiatrowski, "Counting the Incidence of Employee Benefits," *Compensation and Working Conditions*, June 1996, pp. 10–18.

[29] For additional information on the conference and on the major issues regarding linked data, see the series of reports in the July 1998 *Monthly Labor Review*, pp. 48–60.

[30] Harley Frazis, Maury Gittleman, Michael Horrigan, and Mary Joyce, "Results from the 1995 Survey of Employer-Provided Training," *Monthly Labor Review*, June 1998, pp. 3–13.

[31] Mark C. Berger, Dan A. Black, and Frank A. Scott, "How Well Do We Measure Employer-Provided Health Insurance Coverage?" *Contemporary Economic Policy*, July 1998, pp. 356–67.

[32] Alan L. Gustman and Thomas L. Steinmeier, *Employer Provided Pension Data in the NLS Mature Women's Survey and in the Health and Retirement Study*, NBER Working Paper no. 7174, (Cambridge, MA, National Bureau of Economic Research, Inc.), June 1999.

[33] Wesley Mellow and Hal Sider, "Accuracy of Response in Labor Market Surveys: Evidence and Implications," *Journal of Labor Economics*, October 1983, pp. 331–44. One data set used in the study included information from the January 1977 CPS, linked with information collected from the employers of CPS participants. The other data set matched information collected from workers and employers interviewed in the Employment Opportunity Pilot Project Survey.

[34] See, for example, Ioannis Theodossiou, "Promotions, Job Seniority, and Product Demand Effects on Earnings," *Oxford Economic Papers*, July 1996, pp. 456–72. See also Robert F. Elliot and Robert Sandy, "Adam Smith may have been right after all: A new approach to the analysis of compensating differentials," *Economics Letters*, Apr. 9, 1998, pp. 127–31.

[35] Low response rates occurred in the 1995 BLS Survey of Employer-Provided Training and in the 1993 survey sponsored by the W. E. Upjohn Institute for Employment Research. (See the articles cited earlier in notes 30 and 31, respectively.)

Earnings and employment trends in the 1990s

Robust employment growth in high- and low-paying job categories was not accompanied by large wage gains; there was no apparent increase in overall earnings dispersion during the 1990s

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Earnings have long been considered an important measure of one's economic well-being, and it is widely accepted that increased earnings over time result in improved living standards. In the United States, real earnings rose sharply for several decades after World War II, but the trend slowed abruptly during the 1970s. Although the picture during the 1980s and much of the 1990s is less clear because of different patterns among the major earnings measures, it is safe to say that there was comparatively little real wage growth during that period.[1] In recent years, however, workers' real earnings have been on the rise.

The stagnation in real earnings for much of the 1990s stands in marked contrast to the considerable growth in employment during that decade. As of December 1999, the end of the period examined in this article, the current economic expansion had lasted almost 9 years.[2] During that period, total employment, as measured by the Current Population Survey (CPS), grew by more than 16½ million.[3]

Previous research, using data from the CPS, showed that employment growth during the first half of the 1990s was concentrated in both relatively higher paying and relatively lower paying job categories, with a decline in the number of jobs paying midlevel wages.[4] That same research supported the notion that there was a trend toward "polarization" in employment growth. However, it did not examine the *earnings* trends in the fields associated with those categories, nor did it address whether the marked employment growth in some of the categories was accompanied by wage gains. The analysis presented herein extends the earlier work by examining the changes in both employment *and* earnings for all wage and salary workers over the 1989–99 period.[5] Specifically, the analysis addresses the following questions: What has been the relationship between the change in employment and the change in real median weekly earnings? In particular, how have earnings changed in those job categories that posted the largest increases in employment? In addition, what happened to earnings dispersion during the 1990s, especially within the high-, middle-, and low-paying job categories?

The findings presented in the sections that follow suggest that the marked growth in wage and salary employment that took place from 1989 to 1999 in the highest and lowest earnings groups was not accompanied by a rapid rise in earnings. Earnings indeed rose, but only modestly, for both groups. In contrast, both employment and wages in the middle earnings group changed relatively little over the period. While some specific occupation-industry categories posted both strong employment *and* earnings growth, no significant correlation between employment and earnings changes was uncovered for the three major earnings groups. Finally, despite the polarization found in employment growth, earnings dispersion showed little change over the 1989–99 period.[6]

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Overview

The real median weekly earnings of all wage and salary workers showed little change from 1989 to 1996. In 1997, however, real earnings rose, and growth continued through 1999. As a result of these increases, there was a slight improvement in real earnings (6.9 percent) for the 1989–99 period. (Real weekly earnings were adjusted by means of the Consumer Price Index research series using current methods (CPI-U-RS; see box, this page).[7] During those years, wage and salary employment grew by 15.5 million, or 15.0 percent, with virtually all of the net growth occurring after the 1990–91 recession. (See chart 1 and table 1.) It is important to note that the bulk of this job growth has been among full-time workers, whose share of the net growth over the past 10 years (about four-fifths) was in line with their share of total employment in 1989.[8]

As shown in table 1, real median weekly earnings rose in professional specialty, sales, and service occupations, but changed relatively little among the other major occupational groups, such as managers. Together, managers and professionals accounted for three-fifths of the occupational employment growth. Workers in sales and service occupations supplied most of the remaining net increase in employment.

Among the major industry groups, real earnings rose in retail trade, in services, and in the finance, insurance, and real estate industry. Real earnings changed relatively little among the other major industries. Of the total increase in wage and salary employment since 1989, most of the net growth (about four-fifths) occurred in services and retail trade.

Occupations within industries

Employment matrix. A separate look at employment and earnings trends in major occupations and industries provides some insight into the nature of job and earnings growth, but an examination of the changes for occupations *within* industries presents a more complete picture. For example, the fast-growing services industry pays about the same as the median for all industries, but encompasses a wide array of occupations, some of which are associated with low wages, some with relatively high wages.[9] The disaggregation of an industry by occupation allows one to determine, in much greater detail than at the aggregate level, which pieces of the industry are contributing to employment or earnings growth. However, analyzing the changes in employment and earnings for the nine major occupations crossed by the 10 major industries (yielding 90 data series) can be quite cumbersome. To simplify such an analysis, the data series were ordered into a more manageable format.

First, following the methods employed earlier by Ilg, the occupation-industry categories were ranked in descending order by their median weekly earnings in 1988. The categories were then classified into three groups—highest, middle, and lowest earnings—each of which accounted for approximately one-third of total employment in 1988.[10] The data for the 90 individual occupation-industry categories were then sorted into the three earnings groups. Table 2 displays the employment and real median weekly earnings figures for the individual categories and the overall figures for each of the three earnings groups for the years 1989 and 1999.[11]

Highest earnings group. From 1989 to 1999, employment in the highest earnings group increased by 9.7 million, or about 27 percent—the most of the three earnings groups. Real median weekly earnings for the highest group showed only modest improvement. By 1999, real median weekly earnings in this group had risen by 6.3 percent, to $728 per week.

As the U.S. economy moved out of the recession of the early 1990s and employment expanded, job growth in the highest earnings group accelerated, and strong growth continued through 1999. In contrast, real median weekly earnings for the

The Bureau of Labor Statistics statement on the use of the CPI-U-RS

The Bureau of Labor Statistics has made numerous improvements to the Consumer Price Index (CPI) over the past quarter-century. While these improvements make the present and future CPI more accurate, historical price index series are not adjusted to reflect the improvements. Many researchers, however, expressed an interest in having a historical series that was measured consistently over the entire period. Accordingly, the Consumer Price Index research series using current methods (CPI-U-RS) presents an estimate of the CPI for all Urban Consumers (CPI-U) from 1978 to 1998 that incorporates most of the improvements made over that time span into the entire series.

The CPI-U-RS is in some ways an extension of the CPI-U-X1, an experimental series that shows what the inflation rate in the CPI-U might have been if the current rental-equivalence method of measuring the cost of homeownership had been in place prior to 1983.

The CPI-U-RS has some limitations. First, most estimates are based on BLS research covering a short period of time and extrapolated to a longer period. Therefore, there is considerable uncertainty surrounding the magnitude of the adjustments. Second, there have been several improvements in the CPI not incorporated into the CPI-U-RS, either because they do not represent changes in methodology, because they had negligible impacts on the CPI's growth rate, or because it was impossible to systematically estimate the impacts of the new methods in past years.

Nonetheless, the CPI-U-RS can serve as a valuable proxy for researchers needing a historical estimate of inflation using current (1999) methods. The direct adjustment of individual CPI index series makes this the most detailed and systematic estimate available of a consistent CPI series.

Table 1. Employment and median weekly earnings of wage and salary workers, by occupation and industry, 1989 and 1999

[Numbers in thousands]

Occupation and Industry	Employment				Median weekly earnings in constant 1999 dollars[1]			
	1989	1999	Change[2]		1989	1999	Change[2]	
			Number	Percent			Number	Percent
Occupation								
Total	103,480	118,963	15,483	15.0	$447	$478	$31	6.9
Executive, administrative, and managerial	11,950	16,000	4,050	33.9	728	760	32	4.4
Professional specialty	13,408	18,693	5,285	39.4	688	735	47	6.8
Technicians and related support	3,511	4,188	677	19.3	574	578	4	.7
Sales occupations	11,354	13,451	2,097	18.5	352	387	35	9.9
Administrative support, including clerical	17,768	17,874	106	.6	390	400	10	2.6
Service occupations	14,410	16,829	2,419	16.8	245	273	28	11.4
Precision production, craft, and repair	11,906	12,474	568	4.8	574	582	8	1.4
Operators, fabricators, and laborers	17,399	17,514	115	.7	392	396	4	1.0
Farming, forestry, and fishing	1,774	1,940	166	9.4	280	301	21	7.5
Industry								
Total	103,480	118,963	15,483	15.0	447	478	31	6.9
Agriculture	1,499	1,735	236	15.7	289	307	18	6.2
Mining	665	534	−131	−19.7	724	731	7	1.0
Construction	5,798	6,747	949	16.4	536	525	−11	−2.1
Manufacturing	20,831	19,408	−1,423	−6.8	528	554	26	4.9
Transportation and public utilities	7,692	8,944	1,252	16.3	634	619	−15	−2.4
Wholesale trade	3,942	4,586	644	16.3	513	528	15	2.9
Retail trade	17,299	20,185	2,886	16.7	258	289	31	12.0
Finance, insurance, and real estate	7,045	7,780	735	10.4	494	556	62	12.6
Services	33,133	43,077	9,944	30.0	408	460	52	12.7
Public administration	5,576	5,966	390	7.0	607	636	29	4.8

[1] Data are restricted to wage and salary workers and exclude the self-employed, regardless of whether their businesses are incorporated. The data include both full- and part-time workers. The Consumer Price Index research series using current methods (CPI-U-RS) was used to convert current dollars to constant dollars for 1989.

[2] Calculated from the rounded estimates shown.

NOTE: Employment growth was calculated using annual averages for 1989 and 1999.

group dipped in the mid-1990s, but earnings growth in 1997–99 was strong enough to produce a small gain for the period as a whole. (See chart 2.)

As might be expected, virtually all the high-paying managerial and professional occupations are concentrated in this group. Employment among managers and professionals in the highest earnings group accounted for about two-thirds of total employment in the group in 1989, but made up nearly all of the net employment increase over the 1989–99 period. Managers and professionals in the services industry expanded their ranks sharply, together accounting for about two-thirds of the employment gain in the highest earnings group. The trend in their earnings, however, was comparable to that for the overall group, declining a bit in the middle of the decade, but more than recovering toward the end. While the number of executives in construction, manufacturing, and transportation also rose substantially from 1989 to 1999, their earnings were little changed. (See table 2.)

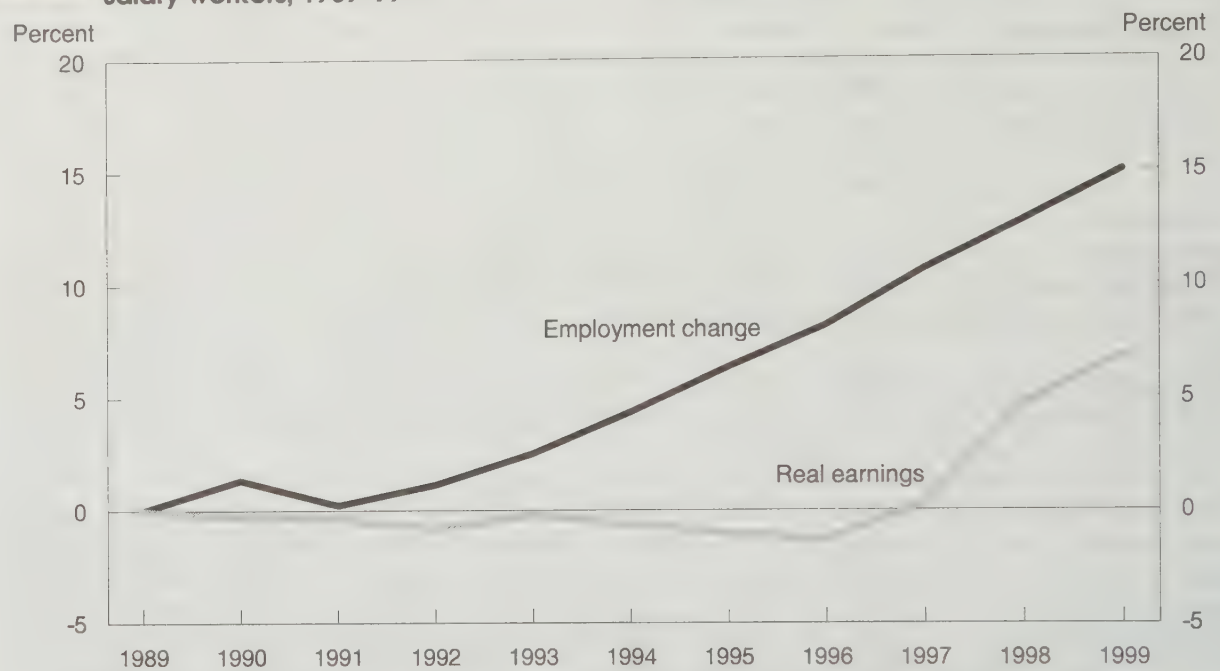
Although managers and professionals dominate in the highest earnings group, some other occupations include a large number of high-paid workers. For example, precision production workers in manufacturing and transportation accounted for a sizable share of employment in the highest earnings group. However, employment and earnings for both job categories changed little over the 1989–99 period.

In 1989, full-time workers accounted for slightly more than 90 percent of employment within the highest earnings group. However, full-time workers contributed a somewhat smaller share of the net increase in job growth over the 10-year period. This difference reflects the fact that much of the overall employment growth occurred among professionals in the services industry, wherein part-time work is more prevalent than it is among professionals in other industries.

No consistent relationship is evident between employment and earnings changes in the highest earnings group over the 1989–99 period. For example, the number of executives in services rose sharply, as did their earnings. Yet, at the same time, employment among managers in transportation and public utilities also increased, but their earnings were little changed; conversely, employment among professionals in construction was little changed, but their earnings declined.

One measure that more systematically identifies the association between two variables (in this case, employment and earnings) is the simple correlation coefficient. To construct

Chart 1. Percent change in employment and real median weekly earnings of wage and salary workers, 1989–99



NOTE: The percent shown represents the percent growth or decline in annual average employment or real median weekly earnings between the year indicated and the level in 1989.

this measure, we used the percent change in employment for each occupation-industry category (weighted by its share of total employment in 1989) and the percent change in earnings. The correlation coefficient ranges from –1.0 to 1.0, with 1.0 indicating a perfect positive relationship and –1.0 a perfect negative relationship.

For the highest earnings group, the correlation coefficient was 0.29, which, while positive, does not indicate a high degree of association between changes in employment and changes in earnings. (The correlation coefficient for this group was not statistically different from zero at the 90-percent confidence level.) Hence, the strongest growing occupation-industry categories in the high-earnings group were not necessarily associated with the fastest earnings growth.

Middle earnings group. From 1989 to 1999, employment in the middle earnings group edged up, as growth in the second half of the period offset losses during the recession of the early 1990s.[12] Employment remained below prerecession levels until 1997. Substantial job growth in 1997 and 1998, however, led to a net employment gain of some 400,000, about 1 percent, over the entire 1989–99 period. (See chart 2.)

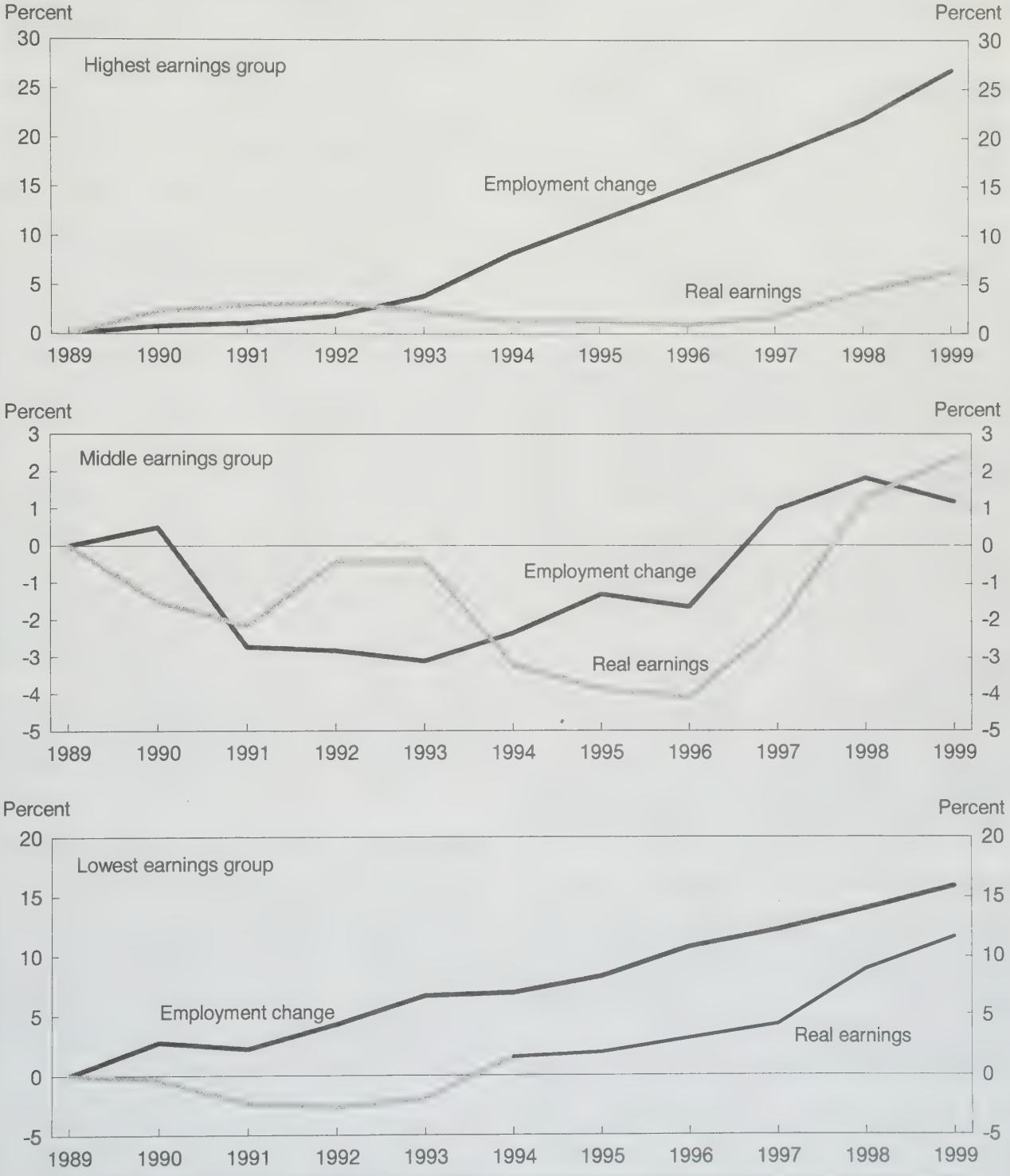
Real earnings in the middle earnings group drifted down for most of the period, before recovering markedly during 1997–99. In 1989, median weekly earnings were $464 (in constant 1999 dollars). After reaching a low point in 1996 ($445), earnings rose sharply. As a result, by 1999, earnings in the middle earnings group—at $475—were little changed from 1989. (See table 2.)

The pattern of little overall change in employment and earnings trends for the middle earnings group masked variations in several detailed occupation-industry categories. Many of these categories include blue-collar occupations in a variety of goods- and service-producing industries. Employment in some occupation-industry categories, such as operators, fabricators, and laborers in both construction and the transportation and public utilities industry, grew markedly over the past decade, but their weekly earnings declined. Employment declined significantly, however, among operators, fabricators, and laborers in manufacturing, while their earnings changed little.

A few occupation-industry categories other than those typified by blue-collar jobs showed substantial employment changes. The number of managers in retail trade increased, as did their earnings. Employment among technicians in the services industry also rose between 1989 and 1999, but their earnings were up only slightly. However, the number of clerical workers in manufacturing decreased, while earnings for the group increased.

As with full-time workers in the highest earnings group, full-time workers in the middle earnings group accounted for

Chart 2. **Percent change in employment and real median weekly earnings of wage and salary workers, by earnings group, 1989–99**



NOTE: The percent shown represents the percent growth or decline in annual average employment or real median weekly earnings between the year indicated and the level in 1989. Median weekly earnings for the lowest earnings group have been adjusted for the years 1989–93. (See note 13 in the text.)

Table 2. Employment and median weekly earnings of wage and salary workers, by major occupation and industry, 1989 and 1999

[Numbers in thousands]

Occupation	Industry	Employment				Median weekly earnings in constant 1999 dollars[1]			
		1989	1999	Change[2]		1989	1999	Change[2]	
				Number	Percent			Number	Percent
Highest earnings group	**Highest earnings group**								
	Total	35,863	45,516	9,653	26.9	$685	$728	$43	6.3
Professional specialty	Finance, insurance, and real estate	198	378	180	90.9	811	856	45	5.5
Professional specialty	Wholesale trade	77	145	68	88.3	961	811	–150	–15.6
Executive, administrative, and managerial	Construction	473	784	311	65.8	795	798	3	.4
Executive, administrative, and managerial	Services	3,714	5,699	1,985	53.4	664	734	70	10.5
Professional specialty	Services	9,667	14,006	4,339	44.9	645	689	44	6.8
Technicians and related support	Finance, insurance, and real estate	131	188	57	43.5	669	713	44	6.6
Executive, administrative, and managerial	Transportation and public utilities	823	1,171	348	42.3	876	872	–4	–.5
Technicians and related support	Transportation and public utilities	262	354	92	35.1	781	781	0	.0
Executive, administrative, and managerial	Wholesale trade	401	541	140	34.9	673	716	43	6.4
Sales occupations	Finance, insurance, and real estate	1,242	1,611	369	29.7	667	672	5	.7
Service occupations	Public administration	1,370	1,742	372	27.2	630	630	0	.0
Professional specialty	Public administration	775	984	209	27.0	820	816	–4	–.5
Executive, administrative, and managerial	Finance, insurance, and real estate	1,884	2,311	427	22.7	685	733	48	7.0
Professional specialty	Mining	57	69	12	21.1	1,217	1,021	–196	–16.1
Professional specialty	Transportation and public utilities	463	549	86	18.6	863	931	68	7.9
Sales occupations	Wholesale trade	1,375	1,594	219	15.9	666	697	31	4.7
Executive, administrative, and managerial	Public administration	1,207	1,378	171	14.2	714	814	100	14.0
Executive, administrative, and managerial	Manufacturing	2,204	2,506	302	13.7	928	943	15	1.6
Professional specialty	Manufacturing	1,727	1,950	223	12.9	922	978	56	6.1
Precision production, craft, and repair	Transportation and public utilities	1,276	1,345	69	5.4	737	724	–13	–1.8
Professional specialty	Construction	138	143	5	3.6	956	919	–37	–3.9
Sales occupations	Construction	58	59	1	1.7	749	637	–112	–15.0
Sales occupations	Manufacturing	709	700	–9	–1.3	668	700	32	4.8
Precision production, craft, and repair	Manufacturing	4,004	3,837	–167	–4.2	600	607	7	1.2
Technicians and related support	Manufacturing	708	653	–55	–7.8	680	715	35	5.1
Technicians and related support	Public administration	251	231	–20	–8.0	668	658	–10	–1.5
Precision production, craft, and repair	Mining	220	189	–31	–14.1	736	719	–17	–2.3
Precision production, craft, and repair	Public administration	239	196	–43	–18.0	634	624	–10	–1.6
Executive, administrative, and managerial	Mining	87	66	–21	–24.1	1,060	1,051	–9	–.8
Middle earnings group	**Middle earnings group**								
	Total	33,362	33,757	395	1.2	464	475	11	2.4
Technicians and related support	Retail trade	80	198	118	147.5	388	350	–38	–9.8
Professional specialty	Retail trade	275	420	145	52.7	471	600	129	27.4
Executive, administrative, and managerial	Retail trade	1,129	1,484	355	31.4	502	565	63	12.5
Precision production, craft, and repair	Finance, insurance, and real estate	131	172	41	31.3	462	498	36	7.8
Technicians and related support	Services	1,922	2,389	467	24.3	502	515	13	2.6
Precision production, craft, and repair	Services	1,319	1,637	318	24.1	480	515	35	7.3
Operators, fabricators, and laborers	Transportation and public utilities	2,135	2,602	467	21.9	541	517	–24	–4.4
Service occupations	Transportation and public utilities	263	317	54	20.5	485	405	–80	–16.5
Precision production, craft, and repair	Construction	3,260	3,723	463	14.2	553	541	–12	–2.2
Operators, fabricators, and laborers	Construction	1,416	1,592	176	12.4	447	428	–19	–4.3
Operators, fabricators, and laborers	Wholesale trade	928	1,043	115	12.4	395	400	5	1.3
Administrative support, including clerical	Transportation and public utilities	2,135	2,325	190	8.9	577	523	–54	–9.4
Technicians and related support	Construction	55	58	3	5.5	601	615	14	2.3
Precision production, craft, and repair	Wholesale trade	311	308	–3	–1.0	507	587	80	15.8
Precision production, craft, and repair	Retail trade	1,111	1,033	–78	–7.0	458	499	41	9.0
Administrative support, including clerical	Finance, insurance, and real estate	3,081	2,733	–348	–11.3	384	407	23	6.0
Operators, fabricators, and laborers	Manufacturing	8,736	7,636	–1,100	–12.6	411	421	10	2.4
Operators, fabricators, and laborers	Mining	176	151	–25	–14.2	626	590	–36	–5.8
Administrative support, including clerical	Public administration	1,504	1,269	–235	–15.6	454	474	20	4.4
Sales occupations	Transportation and public utilities	322	270	–52	–16.1	505	684	179	35.4
Farming, forestry, and fishing	Manufacturing	63	51	–12	–19.0	391	471	80	20.5

See footnotes at end of table.

Table 2. Continued—Employment and median weekly earnings of wage and salary workers, by major occupation and industry, 1989 and 1999

[Numbers in thousands]

Occupation	Industry	Employment				Median weekly earnings in constant 1999 dollars[1]			
		1989	1999	Change[2]		1989	1999	Change[2]	
				Number	Percent			Number	Percent
Middle earnings group—continued	**Middle earnings group—continued**								
Administrative support, including clerical	Manufacturing	2,336	1,824	–512	–21.9	$441	$456	$15	3.4
Service occupations	Manufacturing	344	251	–93	–27.0	403	348	–55	–13.6
Operators, fabricators, and laborers	Public administration	155	105	–50	–32.3	492	473	–19	–3.9
Lowest earnings group	**Lowest earnings group**								
	Total	34,256	39,696	5,440	15.9	[3]259	289	30	11.6
Sales occupations	Services	794	1,114	320	40.3	275	318	43	15.6
Administrative support, including clerical	Agriculture	82	104	22	26.8	282	280	–2	–.7
Sales occupations	Retail trade	6,801	8,054	1,253	18.4	250	286	36	14.4
Operators, fabricators, and laborers	Retail trade	2,082	2,450	368	17.7	237	265	28	11.8
Administrative support, including clerical	Services	5,988	7,025	1,037	17.3	340	356	16	4.7
Service occupations	Retail trade	4,339	5,078	739	17.0	188	220	32	17.0
Service occupations	Services	7,742	9,056	1,314	17.0	242	267	25	10.3
Service occupations	Finance, insurance, and real estate	256	291	35	13.7	286	319	33	11.5
Farming, forestry, and fishing	Agriculture	1,186	1,339	153	12.9	279	293	14	5.0
Operators, fabricators, and laborers	Services	1,635	1,824	189	11.6	271	296	25	9.2
Administrative support, including clerical	Wholesale trade	747	795	48	6.4	382	403	21	5.5
Administrative support, including clerical	Retail trade	1,467	1,433	–34	–2.3	301	331	30	10.0
Administrative support, including clerical	Construction	353	336	–17	–4.8	354	387	33	9.3
Farming, forestry, and fishing	Services	352	327	–25	–7.1	250	331	81	32.4
Operators, fabricators, and laborers	Agriculture	76	69	–7	–9.2	354	326	–28	–7.9
Farming, forestry, and fishing	Finance, insurance, and real estate	61	55	–6	–9.8	293	329	36	12.3

[1] Data are restricted to wage and salary workers and exclude the self-employed, regardless of whether their businesses are incorporated. The data include both full- and part-time workers. The Consumer Price Index research series using current methods (CPI-U-RS) was used to convert current dollars to constant dollars for 1989.

[2] Calculated from the rounded estimates shown.

[3] The overall median weekly earnings figure for the lowest earnings group has been adjusted to make it more comparable with earnings data collected beginning in 1994. Figures for the more detailed occupation-industry categories have not been adjusted. (See note 13 in the text.)

NOTE: Details will not sum to totals because occupation-industry categories that had an employment base of less than 50,000 in 1989 or 1999 are not shown separately. Combined, these categories contributed only 56,000 to the net increase in employment. Data in each group are presented on the basis of change, from the largest percent increase to the largest decline. Employment growth was calculated using annual averages for 1989 and 1999.

more than 90 percent of employment in the group in 1989. But they made up just 55 percent of the small net increase in employment during the entire 1989–99 period. This difference is due, in part, to the large decline among certain manufacturing workers (operators, fabricators, and laborers; and administrative support personnel), the vast majority of whom work full time. At the same time, employment increased considerably among some occupations in the services and retail trade industries, in which part-time work is much more prevalent than in other industries.

Consistent with the variations in employment and earnings changes among the job categories in the middle earnings group, there was little correlation between the two variables. (The correlation coefficient was –0.06, not statistically different from zero at the 90-percent confidence level.)

Lowest earnings group. Employment in the lowest earnings group increased by 5.4 million (about 16 percent) between 1989 and 1999. Real earnings in the group rose by 11.6 percent, after adjustment.[13] Employment in the lowest earnings group was relatively unaffected by the recession of the early 1990s. Indeed, through 1993, the rate of employment growth among low-wage workers actually exceeded that for workers at the upper end of the earnings spectrum. However, by the mid-1990s, job growth in the high earnings group had outpaced growth in the lowest earnings group. As a result, over the entire 1989–99 period, net employment growth among low earners was about three-fifths that for the highest earnings group. As noted earlier, employment growth in both groups far exceeded that for middle-wage earners. (See chart 2 and table 2.)

In 1989, median weekly earnings for the lowest earnings

group were $259 (in constant 1999 dollars), after adjustment for the break in series associated with the CPS redesign. Following a slight decline in real earnings from 1989 to 1992, earnings in the lowest earnings group began to increase. Earnings rose markedly in 1998–99, reaching $289 in 1999.

Employment in the lowest earnings group is largely made up of service, sales, and administrative workers, as well as operators, fabricators, and laborers, in the retail trade and the services industries. Among these occupation-industry categories, some of the fastest growing were sales and service workers in the retail trade and services industries. These categories accounted for two-thirds of the net employment increase in the lowest earnings group. Real earnings for all four categories also rose over the 1989–99 period.

Among clerical workers in the lowest earnings group, the number working in the services industry rose substantially over the period, but their earnings were up only slightly. In contrast, the retail trade industry lost administrative support workers over the 1989–99 period, but posted a substantial increase in median weekly earnings.

Compared with the shares of the highest and middle earnings groups, a much smaller share of workers in the lowest earnings group worked full time in 1989 (about three-fifths). Even so, over the 1989–99 period, a large share of the net employment gain for the lowest earnings group was attributable to full-time workers (about four-fifths). This increase reflected, in part, the strong growth in the number of full-time workers in various occupations (for example, sales, service, and administrative occupations) within the services industry.

Even though employment growth was robust in the lowest earnings group and real earnings rose, the correlation coefficient was very low, 0.10 (not statistically different from zero at the 90-percent confidence level). This underscores the weak relationship between employment and earnings changes among the occupation-industry categories in the lowest earnings group.

In sum, employment grew substantially in the highest and in the lowest earnings groups from 1989 to 1999; job growth was especially pronounced in the highest earnings group. Real median weekly earnings also rose among workers in the high- and low-wage groups, with relatively more improvement among the lowest paid workers. Both employment and earnings among workers in the middle were essentially unchanged over the period. In addition, some specific occupation-industry categories in the three earnings groups posted both strong employment increases *and* real wage increases. However, there appears to be no systematic relationship between employment and earnings changes, as evidenced by the low correlation coefficients for the highest, middle, and lowest earnings groups.

Earnings dispersion

In this section, we turn to the question of whether the foregoing employment and earnings developments are associated with changes in wage dispersion. As a measure of central tendency, medians serve as an overall metric for the earnings of a given group and allow one to make general inferences as to how the earnings for the group have changed over time. However, medians provide no information on the degree of dispersion in an earnings distribution—that is, how widely spread individuals are in terms of their relative earnings levels—or the extent to which the dispersion has changed.

One common method used to gauge changes in earnings

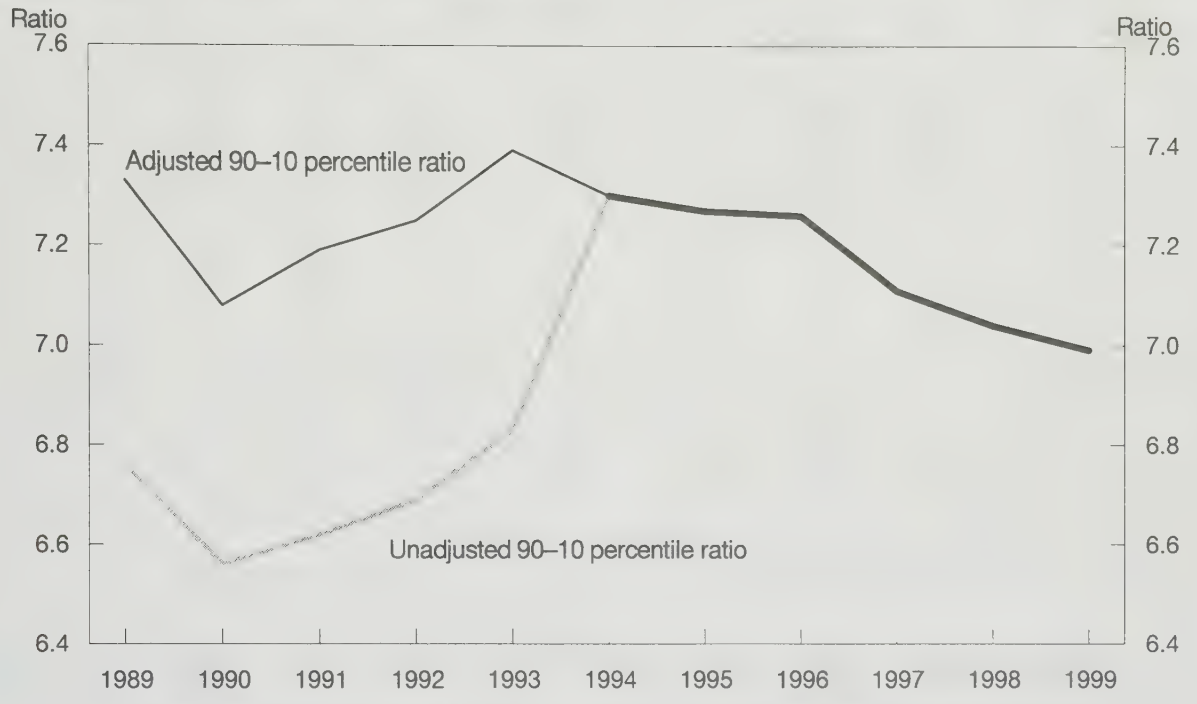
Table 3. Usual weekly earnings of wage and salary workers, by upper limits of selected deciles and quartiles, in current dollars and in constant 1999 dollars, annual averages, 1989–99

Year	Upper limit of—					Upper limit of—				
	First decile	First quartile	Second quartile (median)	Third quartile	Ninth decile	First decile	First quartile	Second quartile (median)	Third quartile	Ninth decile
	In current dollars					In constant 1999 dollars				
1989	[1]$106	$206	$342	$532	$777	[1]$139	$269	$447	$696	$1,016
1990	[1]114	216	358	564	807	[1]142	269	446	702	1,005
1991	[1]116	223	371	585	834	[1]139	268	446	703	1,002
1992	[1]120	227	379	600	870	[1]140	266	444	702	1,018
1993	[1]122	233	391	616	901	[1]139	266	446	703	1,028
1994	128	236	398	636	935	143	263	444	710	1,044
1995	132	243	407	654	960	144	264	443	711	1,044
1996	136	250	417	673	988	144	265	441	712	1,046
1997	144	263	433	697	1,024	149	272	449	722	1,061
1998	154	277	458	727	1,084	157	283	468	743	1,108
1999	163	289	478	755	1,139	163	289	478	755	1,139

[1] The 10th-percentile earnings figure has been adjusted to make it more comparable with earnings data collected beginning in 1994. (See note 15 in the text.)

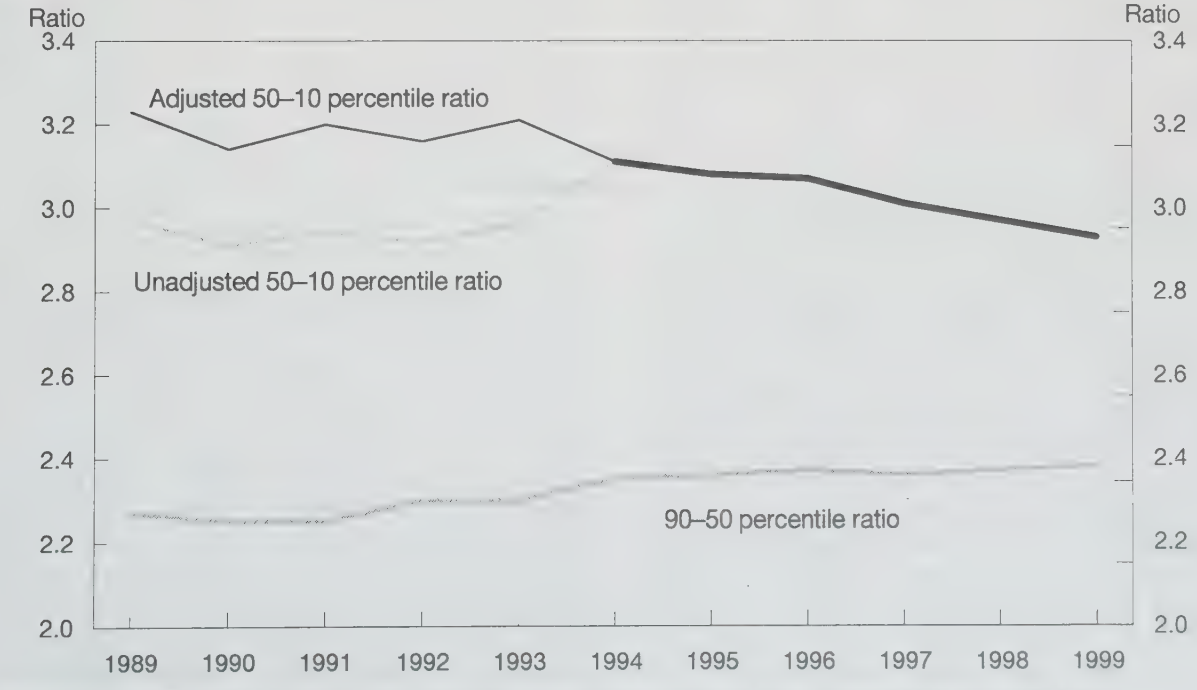
NOTE: The Consumer Price Index research series using current methods (CPI-U-RS) was used to convert current dollars to constant dollars for 1989–99.

Chart 3. The 90–10 and adjusted 90–10 percentile ratios for all wage and salary workers, 1989–99



NOTE: The 10th-percentile earnings figure has been adjusted to make it more comparable with earnings data collected beginning in 1994. (See note 15 in the text.)

Chart 4. The 90–50, 50–10, and adjusted 50–10 percentile ratios for all wage and salary workers, 1989–99



NOTE: The 10th-percentile earnings figure has been adjusted to make it more comparable with earnings data collected beginning in 1994. (See note 15 in the text.)

Table 4. Usual weekly earnings of wage and salary workers, by upper limits of selected deciles and quartiles, in current dollars and in constant 1999 dollars for the three earnings groups, annual averages, 1989–99

Year	Highest earnings group									
	Upper limit of—					Upper limit of—				
	First decile	First quartile	Second quartile (median)	Third quartile	Ninth decile	First decile	First quartile	Second quartile (median)	Third quartile	Ninth decile
	In current dollars					In constant 1999 dollars				
1989	[1]$225	$370	$524	$758	$1,015	[1]$294	$484	$685	$991	$1,327
1990	[1]237	393	563	802	1,056	[1]295	489	701	999	1,315
1991	[1]247	405	587	814	1,116	[1]297	486	705	978	1,340
1992	[1]247	409	604	831	1,168	[1]289	479	707	973	1,367
1993	[1]256	417	614	868	1,209	[1]292	476	701	991	1,380
1994	258	415	622	894	1,237	288	463	694	998	1,381
1995	263	423	638	919	1,277	286	460	694	999	1,389
1996	266	431	653	943	1,331	282	456	691	998	1,409
1997	284	449	673	969	1,373	294	465	697	1,004	1,422
1998	293	476	700	1,013	1,439	299	487	715	1,035	1,471
1999	306	491	728	1,053	1,488	306	491	728	1,053	1,488

Year	Middle earnings group									
	Upper limit of—					Upper limit of—				
	First decile	First quartile	Second quartile (median)	Third quartile	Ninth decile	First decile	First quartile	Second quartile (median)	Third quartile	Ninth decile
	In current dollars					In constant 1999 dollars				
1989	[1]169	248	355	502	655	[1]221	324	464	656	856
1990	[1]178	259	367	512	683	[1]222	323	457	638	850
1991	[1]188	268	378	523	707	[1]226	322	454	628	849
1992	[1]192	274	395	549	719	[1]225	321	462	643	842
1993	[1]195	281	405	564	756	[1]222	321	462	644	863
1994	192	281	402	580	771	214	314	449	648	861
1995	197	287	410	592	786	214	312	446	644	855
1996	204	294	420	605	813	216	311	445	640	861
1997	214	303	438	624	850	222	314	454	646	881
1998	228	316	460	654	888	233	323	470	668	908
1999	237	328	475	672	915	237	328	475	672	915

Year	Lowest earnings group									
	Upper limit of—					Upper limit of—				
	First decile	First quartile	Second quartile (median)	Third quartile	Ninth decile	First decile	First quartile	Second quartile (median)	Third quartile	Ninth decile
	In current dollars					In constant 1999 dollars				
1989	[1]60	121	[1]198	308	429	[1]78	158	[1]259	403	561
1990	[1]67	129	[1]207	320	462	[1]83	161	[1]258	398	575
1991	[1]70	134	[1]211	327	475	[1]84	161	[1]253	393	570
1992	[1]72	141	[1]215	343	496	[1]84	165	[1]252	401	581
1993	[1]75	144	[1]223	358	514	[1]86	164	[1]254	409	587
1994	78	139	236	362	521	87	155	263	404	582
1995	81	144	243	371	538	88	157	264	403	585
1996	84	150	252	382	558	89	159	267	404	591
1997	88	158	261	392	571	91	164	270	406	592
1998	92	167	276	411	599	94	171	282	420	612
1999	96	178	289	424	620	96	178	289	424	620

[1] The 10th-percentile earnings figure for each earnings group and the median weekly earnings figure for the lowest earnings group have been adjusted to make them more comparable with earnings data collected beginning in 1994. (See notes 13 and 15 in the text.)

NOTE: The Consumer Price Index research series using current methods (CPI-U-RS) was used to convert current dollars to constant dollars for 1989–99.

Table 5. Selected percentile ratios, by earnings group, annual averages, 1989–99

Year	Highest earnings group			Middle earnings group			Lowest earnings group		
	90–10	90–50	50–10	90–10	90–50	50–10	90–10	90–50	50–10
1989	[1]4.51	1.94	[1]2.33	[1]3.88	1.85	[1]2.10	[1]7.15	[1]2.17	[1]3.30
1990	[1]4.46	1.88	[1]2.38	[1]3.84	1.86	[1]2.06	[1]6.90	[1]2.23	[1]3.09
1991	[1]4.52	1.90	[1]2.38	[1]3.76	1.87	[1]2.01	[1]6.79	[1]2.25	[1]3.01
1992	[1]4.73	1.93	[1]2.45	[1]3.74	1.82	[1]2.06	[1]6.89	[1]2.31	[1]2.99
1993	[1]4.72	1.97	[1]2.40	[1]3.88	1.87	[1]2.08	[1]6.85	[1]2.30	[1]2.97
1994	4.79	1.99	2.41	4.02	1.92	2.09	6.68	2.21	3.03
1995	4.86	2.00	2.43	3.99	1.92	2.08	6.64	2.21	3.00
1996	5.00	2.04	2.45	3.99	1.94	2.06	6.64	2.21	3.00
1997	4.83	2.04	2.37	3.97	1.94	2.05	6.49	2.19	2.97
1998	4.91	2.06	2.39	3.89	1.93	2.02	6.51	2.17	3.00
1999	4.86	2.04	2.38	3.86	1.93	2.00	6.46	2.15	3.01

[1] The percentile ratios reflect adjustments to the 10th-percentile earnings figure for each group and the 50th-percentile earnings figure for the lowest earnings group. These adjustments make data more comparable with those beginning in 1994. (See notes 13 and 15 in the text.)

dispersion is to track various ratios of percentiles over time.[14] To construct some of these ratios, the weekly earnings values associated with various percentiles (the upper limits of various deciles and quartiles) were computed for all workers and for each of the three separate earnings groups from 1989 to 1999.[15] (See tables 3 and 4.) We then calculated 90th-to-10th, 90th-to-50th, and 50th-to-10th percentile ratios (the upper limit of the ninth decile divided by the upper limit of the first decile, and so forth) for all workers and for each of the three earnings groups for every year during the period.

Chart 3 suggests that earnings dispersion overall changed very little during the 1990s (after adjustment; see note 13). The 90th-to-10th percentile ratio held fairly steady. The 90th-to-50th percentile ratio edged up, while the 50th-to-10th ratio edged down, as shown in chart 4. Thus, those at the top and those at the bottom of the distribution did better relative to those in the middle, but exhibited little change relative to each other. (Percentile ratios based on unadjusted data also are included in charts 3 and 4, to illustrate that the interpretation of recent trends in earnings dispersion is sensitive to the data used.) These findings seem to be consistent with the earnings changes previously noted for the three earnings groups, in that median weekly earnings rose for the lowest and highest earnings groups, but held steady for workers in the middle. The most notable feature of recent earnings patterns, including changes in earnings dispersion, is the relatively strong earnings growth among the lowest paid workers in 1998 and 1999.

Within the earnings groups themselves, growing dispersion was most evident in the highest earnings group. For example, the 90th-to-10th percentile ratio increased markedly over the entire 1989–99 period, reflecting strong real earnings increases among the highest paid workers in the group. It is notable that there was a slight decline in the 90th-to-10th ratio near the end of the period, because earnings advanced relatively sharply for those at the bottom rung of the highest earnings group over the 1997–99 period. (See table 5.)

The middle earnings group showed less evidence of growing earnings dispersion than the highest earnings group, and in the lowest earnings group, earnings dispersion actually declined. It is worth noting again that the lower paid workers in each of these groups also saw their earnings rise slightly from 1997 to 1999.

WAGE AND SALARY EMPLOYMENT GREW SUBSTANTIALLY from 1989 to 1999. Nearly all of the growth was concentrated among relatively high- and low-paid workers, with the strongest job growth occurring in the highest earnings group. There was scant employment growth among workers with midlevel wages. Real median weekly earnings for the highest and lowest earnings groups also showed some improvement over the entire period, largely due to the marked acceleration in earnings growth toward the end of the decade. It is notable that the earnings growth was somewhat more pronounced among workers in the lowest earnings group. Despite a similar pickup in real median weekly earnings in the middle earnings group in the late 1990s, earnings remained about unchanged over the entire period.

Among the more detailed occupation-industry classifications, there was little correlation between those that grew the fastest in terms of employment and those that registered rising wages. While some individual occupation-industry categories had both strong employment growth and strong earnings growth, others showed divergent employment and earnings trends, and still others showed declines in both employment and earnings. These widely different patterns were pervasive throughout the range of detailed occupation-industry categories analyzed.

Finally, given the distinct polarization in employment growth from 1989 to 1999 and the absence of substantial overall earnings growth, we examined the data for changes in the earnings dispersion. After adjusting for breaks in weekly earnings series associated with the redesign of the CPS in 1994, we did not discern a general rise in earnings dispersion over the 1989–99 period. □

Notes

ACKNOWLEDGMENT: The authors thank Anne E. Polivka, of the Office of Employment and Unemployment Statistics, Bureau of Labor Statistics, for deriving adjustment factors used in this article to address the breaks in various CPS weekly earnings data series associated with the 1994 survey redesign.

[1] For an analysis of trends in various wage series from the Current Population Survey, the National Income and Product Accounts, and the Current Employment Statistics survey, see Katharine G. Abraham, James R. Spletzer, and Jay C. Stewart, "Why Do Different Wage Series Tell Different Stories?" *American Economics Association Papers and Proceedings*, May 1999, pp. 34–39.

[2] The official end of the last recession, as determined by the National Bureau of Economic Research (NBER), was March 1991. Under NBER's method for determining the length of an expansion or recession, the economic trough, in March 1991, would be counted as the first month in the current economic expansion. The economic peak (when it occurs) would be counted as the first month in the subsequent economic recession. The longest expansion on record, 106 months, occurred during the 1960s. As of December 1999, the current economic expansion also appears to have lasted 106 months.

[3] The CPS is a nationwide sample survey of approximately 50,000 households conducted for the Bureau of Labor Statistics by the Bureau of the Census. The CPS provides information about the employment status and demographic and socioeconomic characteristics of the civilian noninstitutional population aged 16 and older. The major gauge of employment growth is the Current Employment Statistics (CES) program, a BLS survey of more than 400,000 business establishments. However, this survey does not supply data on the occupational characteristics of employment, an essential feature of the research presented in this article. From March 1992 to December 1999, a period of sustained job growth following the 1990–91 recession, the CES survey showed a job gain of about 22 million, well above the 16½ million indicated by the CPS. (Both estimates are based on changes in seasonally adjusted data). Numerous conceptual and methodological differences between the two surveys could account for these differences in measured employment growth. For a recent study of this issue, see Mark Schweitzer and Jennifer Ransom, "Measuring Total Employment: Are a Few Million Workers Important?" *Economic Commentary* (Federal Reserve Bank of Cleveland, June 1999).

[4] See Randy E. Ilg, "The nature of employment growth, 1989–95," *Monthly Labor Review*, June 1996, pp. 29–36.

[5] Employment and earnings data analyzed in this article are based on the Outgoing Rotation Group files from the CPS. Median weekly earnings for *all* wage and salary workers, both full and part time, are analyzed, unless otherwise noted. Self-employed workers are excluded, regardless of whether their businesses are incorporated. (Earlier research by Ilg, cited in note 4, analyzed *total* employment, including the self-employed.) The year 1989 was chosen as the beginning year for the analysis presented herein because labor market activity at the end of the 1980s resembled that of the late 1990s and also because 1989 was sufficiently removed from the influence of the recession that started in mid-1990.

[6] Some of the earnings data presented in the article have been adjusted for breaks in series associated with the introduction of the redesigned CPS in 1994. Adjustments were made to median weekly earnings for the lowest earnings group and for earnings at the 10th percentile for all workers and each of the three earnings groups. The rationale for making these adjustments is discussed in detail in notes 13 and 15.

[7] See Kenneth J. Stewart and Stephen B. Reed, "Consumer Price Index research series using current methods, 1978–98," *Monthly Labor Review*, June 1999, pp. 29–38. The increase in real median weekly earnings in 1997–99 is particularly noteworthy. A change in real earnings can occur because either nominal wages or the rate of inflation (or both) changed. Throughout much of the 1990s, the annual rate of increase in the CPI-U-RS was about equal to that of nominal earnings. From 1997 to 1999, the rate of inflation was well below levels seen earlier in the decade, while the increase in nominal earnings improved. Other earnings measures, such as average weekly earnings for private production or nonsupervisory workers from the CES program, showed a similar pattern.

[8] For the purposes of this article, full-time workers are those who usually work 35 hours or more on their principal job.

[9] For additional information on the employment diversity in the services industry, see Joseph R. Meisenheimer II, "The services industry in the 'good' versus 'bad' jobs debate," *Monthly Labor Review*, February 1998, pp. 22–47.

[10] The methodology used was adopted from that employed in previous research on job growth. (See Ilg, "The nature of employment growth.") Earnings data for 1988 were chosen for purposes of ranking the individual occupation-industry categories, because that year was outside the period of study, but representative of the level of economic activity throughout much of the 1989–99 period. Similarly, data for 1988 were used as the basis for splitting employment into three groups of nearly equal size. The groups do not necessarily contain exactly one-third of wage and salary employment, because an occupation-industry category that fell on the dividing line between groups was not split, but rather, was included in the group into which most of its employment fell. Sensitivity testing has shown that ranking the occupation-industry categories by earnings from other years may influence those categories on the boundary of the major earnings groups. That is, some categories tend to move in or move out of the major earnings groups, based on which year is chosen for purposes of ranking. However, using earnings from other years to rank the occupation-industry categories also shows that the trends in employment growth for all earnings groups were similar to those presented in this analysis, although the magnitudes of the changes differed somewhat.

[11] Occupation-industry categories that had an employment base of less than 50,000 in either 1989 or 1999 are not shown separately in the table, because the earnings estimates for relatively small groups are generally associated with relatively large standard errors. Employment and earnings data for these categories with fewer workers are, however, included in the totals for the highest, middle, and lowest earnings groups. Combined, the 21 occupation-industry categories (out of the total of 90) accounted for a negligible portion of the net increase in employment between 1989 and 1999. Data are ranked in descending order by percent change in employment. The annual estimates of employment and earnings for the nine major occupations and 10 major industries from 1989 to 1999, as well as the 90 individual data series, are available from the authors upon request.

[12] The reader is cautioned that the middle earnings group is not intended to represent the "middle class." While many studies have documented the erosion of the number of persons, households, or families in the "middle" of the distribution of incomes (a trend often characterized as the "declining middle class"), this article does not attempt to shed further light on that issue.

[13] In January 1994, a new questionnaire and survey methodology were introduced into the CPS. The survey questions on earnings were modified substantially, to improve the quality of the data. While estimates of *overall* median weekly earnings were not materially affected by the redesigned survey, the impact on earnings data for persons at the bottom of the weekly earnings distribution was significant. In particular, changes to the survey in 1994 led to lower reported earnings for relatively low-paid workers, compared with pre-1994 estimates. To account for this break in the various series, median weekly earnings figures for the lowest earnings group over the 1989–93 period have been adjusted to reflect the methodology used in 1994 and later years. After adjustment, the real median weekly earnings for the lowest earnings group for the years 1989–93 are somewhat lower than the unadjusted figures for those years, resulting in a slightly larger percent change over the entire 1989–99 period (11.6 percent, as opposed to 7.8 percent before adjustment). Because of the very small sample sizes, no attempt was made to adjust the earnings series for the detailed occupation-industry categories in the lowest earnings group. (The adjustment factors were produced specifically for this article by Anne E. Polivka of the Bureau of Labor Statistics and were derived using methods she has developed as part of ongoing

research. See Anne E. Polivka, "Using Earnings Data from the Current Population Survey after the Redesign," Bureau of Labor Statistics, working paper 306, January 1999. The adjustment factors are available from the authors upon request.)

[14] Percentiles for any wage or income distribution are calculated by ranking earnings observations from lowest to highest and then determining the earnings level for the upper limit of a given percentile cutoff. For example, 10 percent of earnings observations are below the upper limit of the 10th percentile (or first decile). For a recent analysis and discussion of wage inequality, see, for example, Paul Ryscavage, *Income Inequality in America* (New York, M.E. Sharpe, 1998); see also Jared Bernstein and Lawrence Mishel, "Has wage inequality stopped growing?" *Monthly Labor Review*, December 1997, pp. 3–16.

[15] As explained in note 13, in this article earnings data for the 1989–93 period have been adjusted (where applicable) for breaks in series associated with the redesign of the CPS in 1994. With respect to various percentiles, research has shown that the upper limit of the first decile for all workers was significantly lower, as measured under the redesigned survey; hence, data for the 1989–93 period have been adjusted (downward) to make them more comparable. In addition, the first decile was adjusted for each of the three individual earnings groups. As mentioned in note 13, the 50th percentile (median) for the lowest earnings group also required adjustment.

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Transportation by air: job growth moderates from stellar rates

Aviation employment and business activities increased massively for decades, but growth slowed in the '90s

William C. Goodman

Commercial air transportation has grown rapidly in the United States since 1938 or earlier.[1] The most significant reason for such growth is probably that air travel has become almost continuously more affordable. Ticket prices adjusted for inflation have been falling consistently since 1950 or earlier.[2]

Airfares have decreased over the years not because of any one consistent reason, but because of two distinct sets of circumstances: regulation and deregulation. From 1938 to 1978, Federal control of fares, routes, and even the existence of each airline prevailed. After the lifting of economic regulation, price competition was a major force. Before 1978, development of the commercial airplane itself contributed heavily to decreases in the costs of operations and consequently to lower fares (after adjustment for inflation). After 1978, when changes in routes and fares and the formation of new airlines became unrestricted, price competition and a variety of management responses to competition have reduced operators' costs. The resulting lower fares have multiplied demand and jobs in the industry.

According to estimates from the Bureau of Labor Statistics,[3] employment in commercial aviation increased by about 700,000 jobs, or more than 400 percent, from 1958 to 1996 as output, consisting mainly of passenger-miles and cargo ton-miles, increased by more than 1,800 percent.[4] Although the main purpose of this article is to explain the trend in numbers of jobs in the industry, the movement of aviation output is cited often. Some industries have been known to lack a close connection between production and employment; thoroughly automated processes in certain industries may explain the possibility of little connection between volume of production and number of employees. The aviation industry, despite its great technological advances, remains a service industry, and is labor-intensive. According to the Air Transport Association, ". . . there is no changing the fact that they [airlines] are in a service business where customers require, and often demand, a lot of personal attention. More than one-third of the revenue generated each day by the airlines goes to pay its workforce."[5] This article shows the extent to which employment and production are linked in the aviation industry.

Despite the massive cumulative increases of output and employment, the growth of both decelerated; recent increases have been at reduced rates. This article explains some of the many technological, legislative, and business changes that have caused the growth and the deceleration of the industry.

Economic performance

The amount of growth that has occurred in the industry's jobs and business, both in isolation and in relation to other transportation industries, the general economy, and U.S. international trade, is extraordinary. To give one of many possible perspectives, from 1971 to 1997, the proportion of U.S. adults who had ever traveled by an airliner increased from less than half (49 percent) to 81 percent. According to surveys from the Air Transport Association of America, the proportion of adults who

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Trends in the former and current estimates of air transportation employment, 1988–96

Within the transportation division, establishments are assigned to a specific industry based on the main economic activity of the entire company. In 1996, a considerable number of establishments engaged in express delivery of letters and packages were re-evaluated regarding the industry in which they properly belonged. Most of the establishments in question had been considered members of the trucking industry; a smaller number had been assigned to the transportation services industry. In 1997, these establishments were reassigned to the air transportation industry. Estimates of employment in trucking were reduced, and estimates of employment in transportation by air were increased. Each of the two changes was on the order of 250,000 jobs. Because of the significant break in the aviation employment data, the old series, which is analyzed in this article, was terminated in 1997. On the basis of the changes in industry classification, new estimates of employment in trucking and in transportation by air were calculated from microdata back to the year 1988.

The revision in the estimated number of employees in transportation by air is large enough so that estimates for years prior to 1988, available only in the old series, are not compatible with estimates from the new series for purposes of analyzing the trends of the industry. To analyze the growth of employment in airlines over several decades, starting in 1958, analysis of employment in this article is generally confined to the use of the old series of estimates.

Despite the difference in magnitude between the old series and the new one, the 8-year trend of the old series in terms of percent employment growth agrees with the new series' trend during the period of overlap, from 1988 to 1996. Although the two time-series show differing percent changes in various individual years, the two estimated aggregate percent changes from 1988 to 1996 are within 1 percentage point of each other. (As shown below, the aggregate growth in employment is estimated at 31.1 percent in the discontinued series and 30.2 percent in the new series.) Average annual percent growth during the 8-year period is 3.4 percent in each of the two series.

An indication of growth in jobs in years after 1996 is provided only by the new series. From 1996 to 1999, growth accelerated somewhat to 3.8 percent per year from 3.4 percent in the preceding 8-year period.

The recent growth, however, is clearly slower than that of still earlier years as estimated by the old series. In the 31-year period through 1989, employment grew by an average of 4.7 percent per year, sharply differing from the more recent 3.8 percent rate.

Comparison of two sets of estimates of employment in transportation by air, 1988–99

Year	*Old series*		*New series*	
	Thousands	*Percent change*	*Thousands*	*Percent change*
Total 1988–96	...	31.1	...	30.2
1988	646	...	850	...
1989	683	5.7	897	5.5
1990	745	9.1	968	7.9
1991	733	–1.6	962	–.6
1992	730	–.4	964	.2
1993	740	1.4	988	2.5
1994	753	1.8	1,023	3.5
1995	788	4.6	1,068	4.4
1996	847	7.5	1,107	3.7
1997	...	...	1,134	2.4
1998	...	...	1,183	4.3
1999	...	...	1,237	4.6

had traveled on an airliner in the latest 12 months increased from 21 percent to 39 percent during the period.[6]

Between 1960 and 1996, the output of the air transport industry increased sixteen-fold. By comparison, the output of the entire business sector only increased by a factor of 3.6. Total passenger-miles of all major forms of transportation tripled, and domestic ton-miles of all major modes of freight transportation increased 1-1/2 times. (See chart 1.)[7]

Substitution? Most modes of transportation have grown during the last 40 years. But to a considerable extent, aviation has taken over the roles of other forms of travel in the typical American life; flight is now a more frequent experience, and most other major modes of passenger transportation have not kept up with the growth of the general economy. The only large category of U.S. transportation to show an actual reduction of business in recent decades is rail passenger transport, which lost 12 billion annual passenger miles from 1960 to 1996. Even if all those who previously traveled by train now travel by air, the loss in rail passenger transport would explain only 3 percent of the increase in domestic air passenger business. In 1960, air transport was 2 percent of all U.S. domestic passenger-miles (including the use of private automotive vehicles); air transport rose to 10 percent of the total by 1996. The following tabulation compares changes in the volumes of the major passenger modes from 1960 to 1996. (Over the same period, by comparison, gross domestic product in chained 1996 dollars increased by 231 percent.)[8]

Mode	Change in passenger- miles	
	In billions	In percent
Total, all modes	2,939	200
Air	395	1,293
Highway, except bus	2,400	170
Intercity bus (1960–95)	9.7	50
Rail	–12	–70

In contrast to air *passenger* service, air *cargo* has not taken the role of any other mode of freight transportation to any large extent. All three domestic surface modes of freight transportation (truck, rail, and water) operate on a much greater scale than air transportation of freight and have shown much more massive growth. The increase in domestic air freight ton-miles since 1960, though large as a percentage of its 1960 level, is about 12 billion ton-miles, while intercity trucking, domestic water, and rail freight have *each* increased by between 350 billion and 785 billion ton-miles. Similarly, the scale of international air cargo has been insufficient to affect the growth of the much vaster operations of international water cargo by much. Aviation has not seriously reduced the growth of any major mode of freight transportation.

It is true, however, that the percent increases in international air cargo and domestic air cargo are not nearly approached by the other modes. The following tabulation shows rates of growth in the major forms of freight transportation.[9]

Mode	Increase in ton-miles	
	In billions	In percent
1960–96:		
Domestic air cargo	12	2,226
Intercity trucking	701	146
Rail	784	37
Domestic water	351	85
1970–94:		
International air cargo	7	502
International water tonnage (ton-miles not available)	455 million tons	78

Deceleration. The growth of output in air transport, however, has decelerated over the decades. The output of the industry increased by 648 percent, or 10.6 percent per year, from 1958 to 1978. A closer look shows that growth was concentrated in the earlier part of the period and slowed to a 6.0-percent rate in the 10 years ending in 1978. From 1978 to 1996, output increased by 5.5 percent per year. From 1986 to 1996, output gained a further decelerated 5.0 percent per year.[10] Some, but not all, of the deceleration is attributable to reduced growth in the business sector as a whole. The following tabulation shows the relationship between growth of output in air transport and increases in output in the entire business sector.

	Percent change per year in output		
	Air transport (a)	Business sector (b)	Ratio of (a) to (b)
1960–70	14.3	4.3	3.3
1970–80	6.0	3.5	1.7
1980–90	6.1	3.4	1.8
1990–96	4.4	3.0	1.5

Further explanations for the deceleration in air transport business, and in turn for the deceleration of employment in aviation, have to do with the history of aviation technology, regulation by the Federal Government, and the airlines' operational methods. Other explanations relate to general economic deceleration. The technology, regulation, and business strategies of the industry have changed greatly; major changes will be explained in later sections of this article.

Growth of subdivisions of air transport. The various categories of air transport (freight, passenger, domestic, and in-

Chart 1. Aviation output and business-sector output, 1959 to 1996

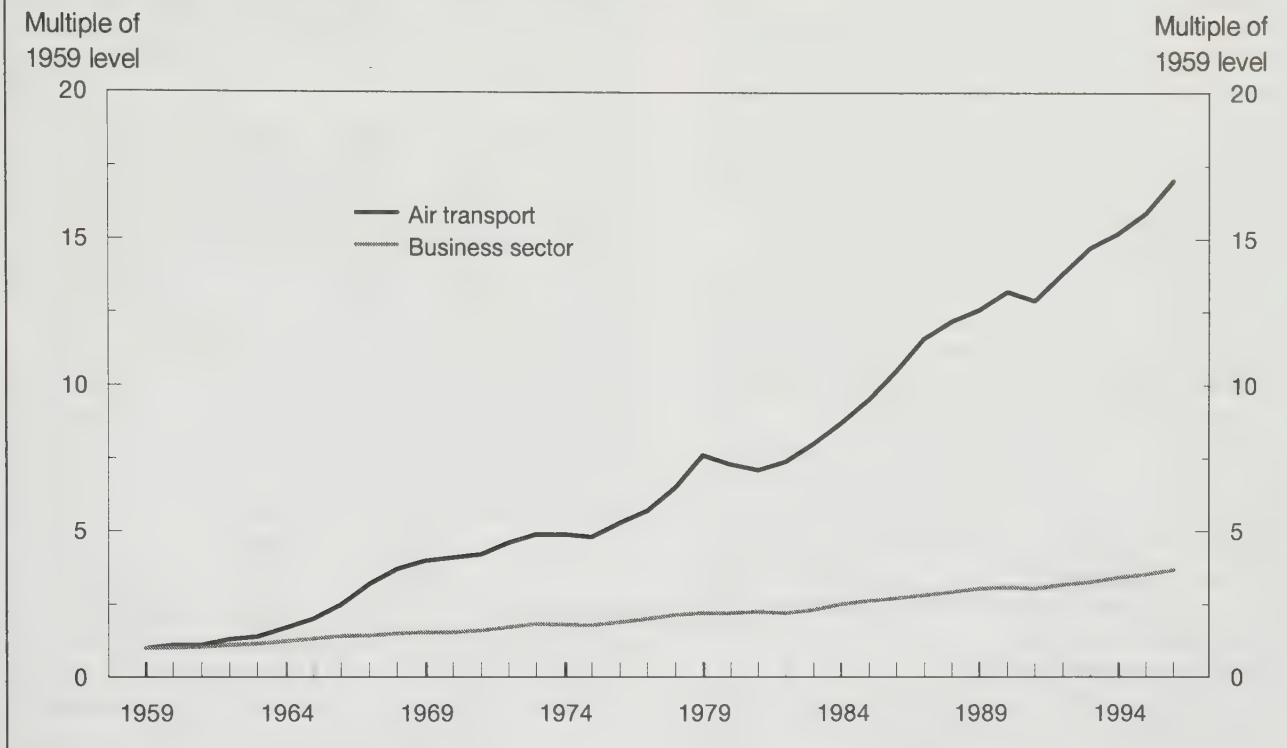
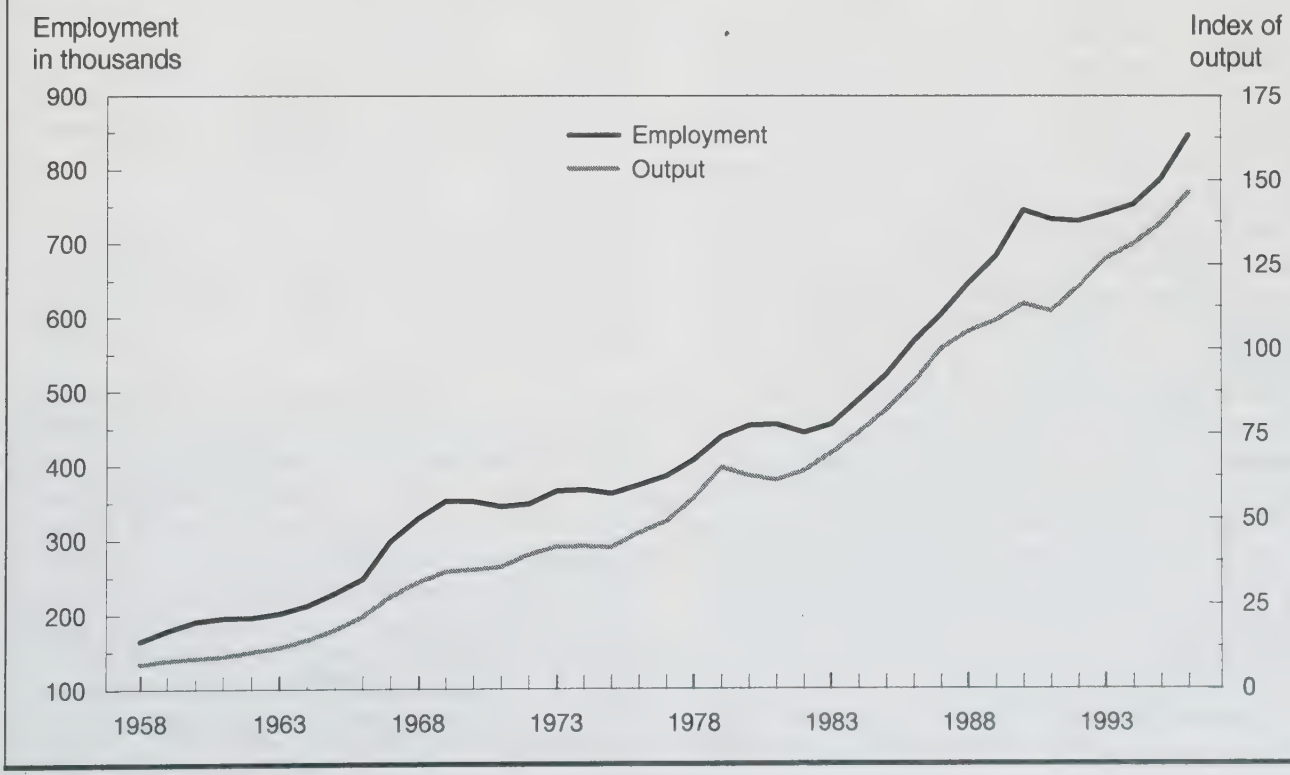


Chart 2. Output and employment in transportation by air, 1958 to 1996



ternational) have grown at far different rates. Air cargo has increased much more rapidly, in percent terms, than passenger flight. From 1970 to 1996, while passenger-miles almost quadrupled, air cargo ton-miles increased to about six times their 1970 level. One explanation for the rapid growth of air cargo may be the growth of catalog and mail-order retailers, who often offer express delivery by air. From 1982 to 1995, the output of such catalog and mail-order retailing increased by 222 percent, while the output of the entire business sector increased by 61 percent.[11] In the domestic market for freight transportation, relative costs are a factor; from 1960 to 1996, the cost of domestic airfreight adjusted for inflation declined, while the cost of class 1 intercity trucking increased.[12] Greater international trade is another explanation for the growth of air cargo, as discussed later in this article.

The transportation of passengers may be divided between business travel and personal travel. Both business trips and personal trips have increased substantially, but the growth of personal travel has been greater. From 1977 to 1997, business trips increased by 125 percent, but personal trips increased by 175 percent. As personal travel is more sensitive to fares, the long-term decline in fares is a more important factor in personal flights than in business trips.

Within the broad category of reasons for personal travel, the specific reason that showed the most dramatic gain was sightseeing and resort use. Travel to resorts and the sights motivated trips for 20 percent of air travelers in 1977 and 31 percent in 1997. Flying to visit friends or relatives also increased as a proportion of air travelers' purposes. In 1977, 53 percent of air travelers flew to visit people; in 1997, 71 percent did. (Some individuals took more than one trip for more than one personal reason.)[13]

Growth: domestic versus international. Within the category of passenger transport, domestic flight contributed most of the increase in business because domestic operations constitute the bulk of the passenger business. But international business grew proportionately more. From 1960 to 1996, domestic passenger miles increased by 1,293 percent (395 billion passenger miles), and international passenger-miles increased by 1,741 percent (145 billion passenger-miles).[14]

From 1983 to 1996, the number of overseas visitors to the United States nearly tripled (a 189-percent increase), reaching a level of 22.7 million arrivals in 1996. Trips *to* the United States by overseas residents grew to outnumber overseas trips *from* the United States by U.S. residents, during the period. While a single trip can have more than one purpose, a nearly constant percentage of visitors from overseas (32 percent in 1983 and 31 percent in 1996) performed business or professional activities in the United States. The proportion that visited friends or relatives in the United States also was stable at 30 percent to 31 percent. The percentage indulging in leisure activities during at least part of their stay increased substantially, from 47 percent in 1983 to 63 percent in 1996. Growth in visits *to* the United States appears to be concentrated among those motivated by leisure and recreational activities.[15]

Among U.S. residents flying overseas, growth in trips has the opposite concentration in motive. All major categories of activity contributed to an overall 103-percent increase in overseas flights by U.S. residents, but the proportionately greatest increase was in work and work-related activities. Those performing business or professional activities overseas increased from 27 percent of the total in 1983 to 36 percent in 1996.[16]

In freight transport as well, domestic service is greater in scale than international service and contributed a larger increase in ton-miles. From 1970 to 1996, domestic air cargo increased by 10.7 billion ton-miles, and international ton-miles increased by 7.4 billion. But, as in passenger service, international freight increased at a greater percentage rate (567 percent) than domestic freight (488 percent).

The enormously increased share of international, as opposed to domestic, business in general requires more air travel, including both cargo transport and passenger flight for business purposes. International cargo traffic is also boosted by manufacturers' "just-in-time" approach to inventory, which became widespread in the 1980s and 1990s, and by recent consumer demand for fresh foods of all kinds regardless of the season.[17] The following tabulation shows the increasing proportions of international business as a part of the U.S. economy.[18]

	U.S imports as a percentage of gross domestic product	*U.S exports as a percentage of gross domestic product*
1960	4.6	3.7
1970	6.3	4.5
1980	6.7	6.8
1990	9.5	8.6
1996	12.3	11.2

Jobs. Employment of airline personnel is linked tightly to air transport output. Ninety-nine percent of the variation in numbers of employees from 1958 to 1996 can be predicted on the basis of industry output, according to a regression calculation. Chart 2 shows that the curves representing output and employment over time have similar shapes.

The number of jobs added and the amount of output added each year, however, have not been in a constant proportion to each other. Over time, fewer employees are hired for a given amount of additional business because technological and operational progress allows for the more efficient use of both old and new employees.

Like output, employment in the industry has grown almost every year since 1958. From 1958 to 1996, despite various mass layoffs, mergers, and failures, employment in the air transportation industry as a whole increased from 165,000 to 847,000, a 413-percent increase, or an average of 4.4 percent per year. (See table 1.)

Not surprisingly, employment in air transportation has expanded at a far greater rate than employment in other modes of travel. Aside from the much greater percent increases of business in air transportation, another major factor contributes to the differences in hiring: employment in rail and water transportation declined even as ton-miles increased. Percent increases or decreases in jobs by mode are shown in the following tabulation:

Mode	*Year*	*Employment change in percent*
Rail	1958–96	–76
Water	1964–96	–24
Air	1958–96	413
Trucking and warehousing	1988–96	21
Air	1988–96	31

A deceleration is evident in aviation employment. While jobs increased by 4.6 percent per year from 1958 to 1978, from 1978 to 1996 they increased by 4.1 percent per year. From 1990 to 1996, the rate of increase slowed to 2.2 percent. The following tabulation shows the relationship between growth in aviation-industry jobs and all nonfarm payroll jobs:

	Annual percent change in jobs		*Ratio of percent growth in air transportation to percent growth in total nonagricultural industry*
	Air transport	*Total nonfarm*	
1958–78	4.6	2.7	1.7
1978–96	4.1	1.8	2.3
1980–90	5.1	1.9	2.7
1990–96	2.2	1.5	1.5

In proportion to the general economy, then, jobs in transportation by air have not increased as strongly in the 1990s as they had in earlier decades.

Estimates from the Bureau of Labor Statistics permit the comparison of rates of job growth in the following subdivisions of the aviation industry since 1988: scheduled passenger service, air courier service (the carrying of letters and small parcels), nonscheduled air transportation, and support services, including the operation of airports and the servicing of aircraft. The following tabulation shows rates of growth in employment by industry from 1988 to 1998.[19]

SIC	*Industry*	*Percent increase in employment*	*Increase as a percentage of entire increase in jobs in transportation by air*
45	Transportation by air	39	100
4512	Scheduled air transportation (passenger and cargo, over regular routes on regular schedules)	15	20
4513	Air couriers (letters, parcels, and generally smaller packages)	70	59
452	Nonscheduled transport (nonscheduled cargo, charter, and others)	137	8
458	Support services (airports, flying fields, services)	48	13

The faster recent growth of cargo transportation, as opposed to passenger traffic, is reflected in the more rapid growth of air couriers (who carry only letters, parcels, and packages) and nonscheduled transport (which is dominated by cargo). Scheduled air transportation, on the other hand, is dominated by the more slowly growing passenger traffic. The rapid growth of support services such as airport operations is explained in part by the building up of airport facilities to handle greater cargo traffic.[20]

Layoffs in recessions. During and soon after the last three recessions (over the years 1980 to 1991), layoffs in the industry have been proportionately much more severe than those of the entire nonfarm sector. (See table 2.) Because personal air travel is generally not a necessity, individuals may be more likely to sacrifice it as opposed to other goods or services. The consistently thin financing of the airlines also makes layoffs and company failures more difficult to avoid.[21]

After the recession of 1969 to 1970 (and to a lesser extent, after the recession of the mid-1970s), air transport employment continued to fall well after the official end of the recession and the upturn of total employment. In the case of the 1969 to 1970 period, the decline in airline employment also started before the recession. In both periods, the declines were not strictly recessionary, as various special problems then affected the industry. (See the section on deregulation later in this article.)

In the latest recession, the loss of jobs in air transportation was almost entirely in scheduled air transportation (SIC 4512, losing 24,000 jobs). Air couriers (SIC 4513) expanded in employment at a reduced rate during the recession; they gained 19,000 jobs in the 12 months just before the recession and

Table 1. Comparison of employment in air transportation and in all nonagricultural industry, 1958–96

Year	Air transportation employment		Total nonagricultural employment		Ratio of percent growth in air transport employment to percent growth in total nonfarm employment
	Number (in thousands)	Percent change	Number (in thousands)	Percent change	
1958	165	...	51,322	...	...
1959	179	8.5	53,270	3.8	2.2
1960	191	6.7	54,189	1.7	3.9
1961	196	2.6	53,999	–.4	–7.5
1962	197	.5	55,549	2.9	.2
1963	202	2.5	56,653	2.0	1.3
1964	213	5.4	58,283	2.9	1.9
1965	229	7.5	60,763	4.3	1.8
1966	248	8.3	63,901	5.2	1.6
1967	298	20.2	65,803	3.0	6.8
1968	329	10.4	67,897	3.2	3.3
1969	353	7.3	70,384	3.7	2.0
1970	352	–.3	70,880	.7	–.4
1971	345	–2.0	71,211	.5	–4.3
1972	348	.9	73,675	3.5	.3
1973	366	5.2	76,790	4.2	1.2
1974	368	.5	78,265	1.9	.3
1975	363	–1.4	76,945	–1.7	.8
1976	374	3.0	79,382	3.2	1.0
1977	386	3.2	82,471	3.9	.8
1978	408	5.7	86,697	5.1	1.1
1979	438	7.4	89,823	3.6	2.0
1980	453	3.4	90,406	.6	5.3
1981	455	.4	91,152	.8	.5
1982	444	–2.4	89,544	–1.8	1.4
1983	455	2.5	90,152	.7	3.6
1984	488	7.3	94,408	4.7	1.5
1985	522	7.0	97,387	3.2	2.2
1986	566	8.4	99,344	2.0	4.2
1987	603	6.5	101,958	2.6	2.5
1988	646	7.1	105,209	3.2	2.2
1989	683	5.7	107,884	2.5	2.3
1990	745	9.1	109,403	1.4	6.4
1991	733	–1.6	108,249	–1.1	1.5
1992	730	–.4	108,601	.3	–1.3
1993	740	1.4	110,713	1.9	.7
1994	753	1.8	114,163	3.1	.6
1995	788	4.6	117,191	2.7	1.8
1996	847	7.5	119,608	2.1	3.6

gained 5,000 during the recession. Airports, flying fields, and services (SIC 458), previously gaining about 7,000 jobs per year, stopped growing, but lost only 1,400 jobs during the recession. It appears that scheduled passenger service is the component most vulnerable to economic layoffs.

Quality. An increasing volume of complaints in recent years indicates that the flight experience is more often unpleasant. Complaints have been about less spacious configurations, "... unexplained delays, baggage hassles and crowded cabins."[22] Unlike other aspects of the industry, the quality of the flight experience is difficult or impossible to quantify.[23] Exactly how to weight less comfortable flights against seriously lower prices is unclear.

Technological progress

By 1958, economic regulation of the industry was well established and effectively prevented price competition. Airlines therefore had incentive to compete and advance in aspects other than fares. Between 1958 and 1978 (as well as earlier), the large civil aircraft typically in use changed greatly. Its improvements both appealed to the general public in and of themselves and lowered operational costs. Although prices did not vary between airlines at a given point in time, cost savings achieved through more advanced aircraft were passed on to passengers in the form of substantially declining ticket prices after adjustment for inflation. Two changes to the aircraft were of particular economic importance. First,

aircraft consistently became larger, so that more travelers could share the cost of a particular flight. From 1960 to 1978, the average number of passenger seats per plane increased from 66 to 146.[24]

Secondly, aircraft became faster because of the gradual transition from propeller-generated thrust to jet power, starting in the late 1950s. [25] A much faster craft could make more runs in a given amount of time, so that the crew and the plane became more productive; consequently, the average cost of a flight declined. Furthermore, at the time, jet fuel cost about half as much as the gasoline used in piston aircraft engines. Faster travel also was more attractive to passengers, and demand increased because of quicker trips and because of lower prices.

Perhaps surprisingly, wide-bodied aircraft, introduced in 1969,[26] represented the last major technological change in the craft to have major economic consequences. After the late 1970s, technological advances in civil air transport have continued, especially in the areas of fuel efficiency and noise reduction,[27] but have been less economically important than earlier developments. By the late 1970s, the transition to jet power among the major airlines was already accomplished. The size of the average airliner in passenger service (in terms of the number of seats) peaked in 1983, when the average craft had 165 passenger seats. The average number of seats then declined to 152 in 1996.[28]

An initiative to build a domestic supersonic jet for passenger service ended in 1971 because of the issue of sonic booms traveling over populated areas. No U.S. airline has ever operated a supersonic craft.[29] Airlines have continued to improve in fuel efficiency, emissions control, and noise abatement.[30]

If the further development of civil aircraft had less economic importance after 1978, a certain earthbound type of technological system did have considerable economic impact. Computer-based reservations systems made reservations bookkeeping more efficient. Certain major airlines shared systems, generating still greater efficiency. Travel agents' electronic access to the airlines' reservations systems further facilitated the sales process. Most recently, customers can check fares and make reservations via the Internet.

More importantly, computers are well suited to a much more sophisticated use. Although ticket pricing had been simple before the late 1970s (typically divided into only two classes: first and coach), modern computer reservations systems enable airlines to provide a complicated and rapidly changing set of prices for better economic advantage.

Computerized reservations systems facilitate benefiting from the differing natures of two types of demand: business travel and personal travel. Generally, the executive on a business trip has an inflexible schedule and relative indifference to ticket prices. The pleasure traveler has more time to spend on layover, more ability to adapt to unpreferred times and dates of travel, and more sensitivity to prices. With computer reservations systems, the airlines can rapidly formulate and implement lower fares with certain restrictions in scheduling, typically required stayovers, to attract more pleasure travelers. The computer systems also quickly calculate higher fares with freer scheduling to attract executives on business.

In addition, tickets tend to become more valuable as the flight becomes more filled and as the date of travel approaches. Computer reservations systems enable the airlines to recalculate fares rapidly in accordance with the changing supply and demand for seats on a particular flight.[31] The industry has succeeded in filling more seats by means of varying fares; therefore more passengers share the cost of a flight, bringing down average fares and consequently aiding growth as average ticket prices fall.

Deregulation: new ways of competing

After the 1970s, fares continued to fall, even though *technological* changes had much less economic impact. The reasons for the continued reductions of fares are mainly related to the end of most of the Federal Government's economic control of air transport.

Federal control of fares and allocation of routes can be traced back to 1938, when Congress created the Civil Aeronautics Authority to foster satisfactory air service. The theory

Table 2. Cyclical behavior of aviation employment, 1960–91

Official dates of recession	Total nonagricultural industry			Transportation by air		
	Dates of decline in employment	Duration of decline (in months)	Percent decline in employment	Dates of decline in employment	Duration of decline (in months)	Percent decline in employment
Apr. 1960—Feb. 1961	Apr. 1960—Feb. 1961	10	2.3	Aug. 1960—Jan. 1961	5	2.1
Dec. 1969—Nov. 1970	Mar. 1970—Nov. 1970	8	1.5	Sept. 1969—Jan. 1972	28	6.6
Nov. 1973—Mar. 1975 ...	Oct. 1974—Apr. 1975	6	2.9	Dec. 1974—Oct. 1975	10	6.0
Jan. 1980—Jul. 1980	Mar. 1980—Jul. 1980	4	1.4	Jan. 1980—Nov. 1980	10	2.8
Jul. 1981—Nov. 1982	Jul. 1981—Nov. 1982	16	3.0	Aug. 1981—Aug. 1982	12	4.2
Jul. 1990—Mar. 1991	Jun. 1990—Feb. 1992	20	1.6	Dec. 1990—Dec. 1991	12	5.1

NOTE: Recessions are designated by the National Bureau of Economic Research.

that excess, disorderly competition would be bad for the industry exerted a crucial influence on Congress. Unregulated start-ups of an unlimited number of operators theoretically would have resulted in so much competition that any particular airline would be unable to attract the capital required to offer good, sustainable service. A certain degree of concentration of capital was believed to be necessary for the development of adequate airlines. "Chaotic competition" had been a great problem in the 1920s in various industries. The Civil Aeronautics Act of 1938 and the Federal Aviation Act of 1958 provided government control of fares, of the creation of any new interstate airlines, and of allocation of routes among airlines.[32] The airlines were to be protected from too many competitors and destructive price slashing.

The Civil Aeronautics Board, the agency created by Congress to regulate the airlines economically, prevented cuts in fares in several ways. First, considerable advance notice of a change in fare had to be given to the board, alerting competitors and thereby reducing the financial incentive to cut fares. The board also disallowed the formation of new airlines; from 1950 to 1974, 79 companies submitted applications to start airline service, but none of the applications were approved. Furthermore, starting in the late1960s, the Board's rules effectively required an airline to change fares, if it did so, on all of its routes rather than selected ones. The result was that fare cuts seldom occurred after 1968.[33] The government not only set rates, but also held down the number of carriers servicing most routes to three or fewer, greatly reducing the potential competition. (Despite these problems, airfares *adjusted for inflation* did decline substantially and almost continuously during the period of regulation, but perhaps not as much as they could have.)

With no competition on price, airlines competed on amenities and on convenience, meaning frequency of scheduled flights. Routine flights, including coast-to-coast ones, by about half-empty planes became a recognized example of vast waste. At least theoretically, such wasteful practices at the expense of travelers would be seriously reduced by unrestricted market entry and price competition.

Why Congress deregulated airlines. Various economic papers from as early as the late 1950s suggested that price competition in air transport would seriously lower fares.[34] Deregulation did not occur, however, until the combination of three economic events contributed to widespread public dissatisfaction with air travel and passage of the Airline Deregulation Act of 1978. First, the Arab oil embargo of 1973 was followed by huge increases in fuel costs. The price of jet fuel climbed greatly through 1981. Secondly, the recession of the mid-1970s reduced growth in airline business and contributed to a downturn in airline volume in 1975. And third, the carriers' financial vulnerability was worsened because carriers had recently incurred the expense of newly developed wide-bodied aircraft and were unable to fill them. To protect the airlines, the Civil Aeronautics Board allowed considerable increases in fares (the price of a passenger-mile, not adjusted for inflation, rose by a third from 1973 to 1978[35]) and allowed carriers to reduce service. The public response to higher prices and scarcer seats was unfavorable. Prominent Senate subcommittee hearings spread the idea that ticket prices would be reduced significantly under free competition. Fares, including the cost of moving freight as well as people, availability of seats, and the financial soundness of the carriers, then, were the key issues in a historic reversal of government policy.[36]

Starting in late 1977, *cargo* carriers were allowed to set their own prices and fly any domestic route. The Airline Deregulation Act passed in October 1978, and by late 1979, "carriers were able to launch just about any domestic service they wanted"and decide on their own ticket prices.[37] New providers of domestic airline service also were permitted to start operations; the number of carriers using craft with over 60 passenger seats more than tripled from 1978 to 1984.[38] International air service, however, was not deregulated, as the various governments did not agree to do so.

In retrospect, two of the developments that caused deregulation were of relatively short duration or were misperceived. The large increases in ticket prices were perhaps the most important immediate motivation, yet they were arguably illusory. The nominal price increases near the end of regulation, from 1973 to 1978, were indeed large, but adjustment of the fares for general inflation (using the Consumer Price Index or CPI) shows that real prices of airline tickets continued to fall even in that time, despite the Arab oil embargo. Adjusted for inflation, airfares fell by 2.3 percent per year from 1973 to 1978. The downward trend in real prices in the 5-year period, then, was at about the same rate as in the preceding years.[39]

The mid-1970s recession, which in reducing airline business led to fears about the airlines' financial survival, ended in 1975. Even during the recession, airline business (as measured by output) declined in only one year, 1975, the final year of the recession. In 1976, still under regulation even if regulation was eased in policy, airline-industry output (consisting primarily of passenger-miles and cargo ton-miles) rose by 10 percent and reached an all-time high, as it had in every year since 1948 except for 1975. Two of the immediate motivations for deregulation (rising fares and declining business), then, were arguably illusory reasons for a permanent change in policy.

Changes in economic trends of the industry clearly occurred soon after deregulation. Greater competition, generating lower prices and consequently greater demand, was a major development. The number of carriers was obviously affected. Soon after passage of the Airline Deregulation Act, entrepreneurs did indeed respond to the sudden possibility of flying routes at will. The number of major, national, and regional airlines had

decreased from 52 in 1971 to 43 in 1978; but in 1979, 60 such carriers (40 percent more) operated. Still more airlines opened for business, until the number peaked at 87 in 1984.[40]

The established major airlines successfully regained market share by means of the following changes:

- Flying more routes
- Making cooperative arrangements with commuter airlines to offer more continuous routes under the same brand name so as to offer greater convenience and more visibility
- Using computer reservation systems tied in with travel agencies and offering a range of prices for the same trip
- Conducting frequent-flyer programs
- Increasing production quotas of personnel

The number of carriers decreased to 60 in 1989 as mainly the newer ones failed. The number of carriers then climbed to 96 by 1996 [41] as demand for travel continued to increase and the successful strategies of the majors had already had their most crucial effects.[42]

Yet the level of competition has been greater ever since deregulation because, since 1978, the major carriers have competed much more with each other on particular routes.[43] Surprisingly enough, the number of carriers nationwide shows little relationship to overall prices, the volume of business, or employment. (See chart 3.) But the number of carriers *serving a particular route* is highly relevant to ticket prices on that route. Naturally, routes served by a larger number of competitors have lower prices per mile.[44]

During regulation, from 1969 to 1978, average per-mile ticket costs, adjusted for inflation using the CPI, fell 2.2 percent per year. After deregulation, real prices fell at only a slightly faster rate, 2.3 percent. (See chart 4.) While the airliner was no longer changing so substantially to produce more economical operations, price competition was occurring. According to one respected source, deregulation was responsible for 58 percent of the price cuts from 1978 to 1993 and made fares 22 percent lower than they would have been without deregulation.[45] As stated earlier, lower prices raise demand and contribute to growth and, in turn, employment.

In recent years, however, ticket prices have fallen at a reduced rate. From 1986 to 1998, they declined by 1.8 percent per year.

Changed rules and productivity

Labor productivity, highly relevant to the rate of growth in jobs, had already been increasing impressively before deregulation; larger and faster craft made greater productivity on the part of flight crews possible. After 1978, the causes of increasing productivity changed, as management developed responses to the newly competitive environment. In earlier years, the increasing capacity of the average airliner allowed more passengers to be transported by a flight crew, aided by a dispatcher and other ground personnel whose efforts also became more efficient as the airliner grew. But in the new competitive market, the average capacity of a passenger aircraft (in seats) about leveled off, then dropped by 14 percent from 1986 to 1996. When a price war strained airline budgets soon after deregulation, massive layoffs by certain major airlines, reduced pay, and renegotiated work rules were used to cut costs.[46] Reservations systems were computerized and shared among airlines, reducing the manual workload entailed in reservations.

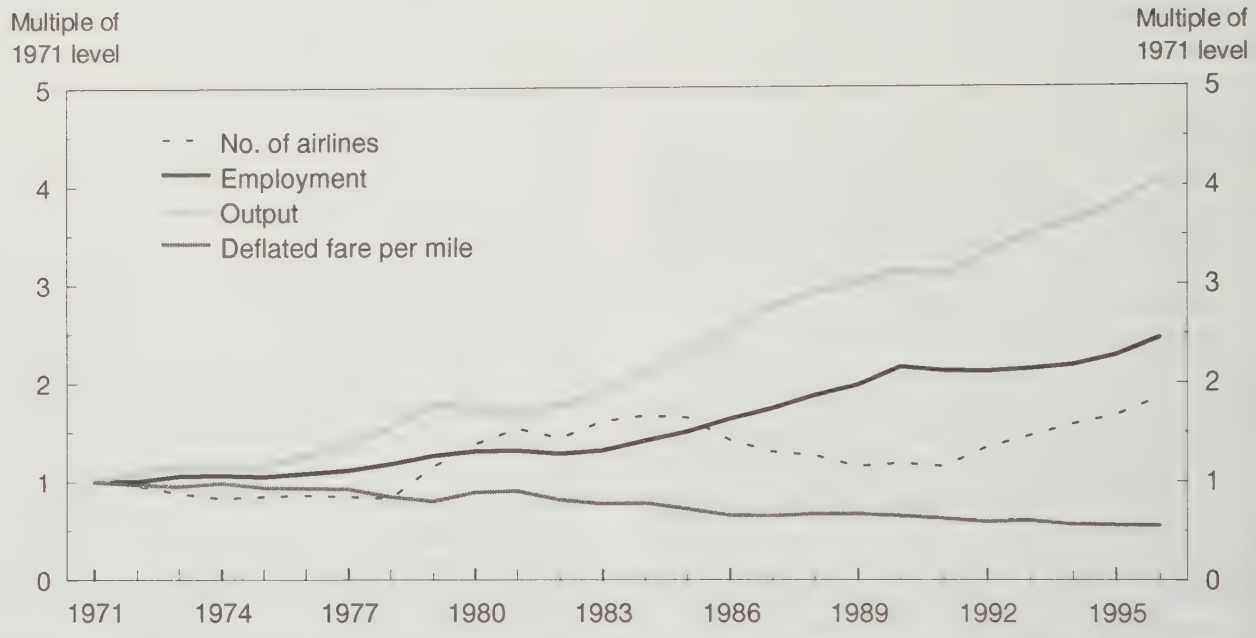
The development of the hub-and-spoke system of routes in the early 1980s was especially advantageous.[47] Instead of the simpler, more traditional arrangement of routes between paired cities, passengers from various points of origin were flown to a "hub" and then grouped together to fill a large craft more fully during a common leg of their journeys. The hub-and-spoke system was successful in increasing the number of seats filled. "Load factor," the percentage of passenger seats filled, had increased by 0.2 percent per year from 1958 to 1978, but increased more than three times as fast, by 0.7 percent per year, from 1978 to 1996. The hub-and-spoke system, however, was only one factor responsible for the gains; the deliberate use of smaller aircraft on routes with less demand has been another important cause of increasing load factors.[48] Despite more frequent use of smaller craft, the average number of *passengers carried* per aircraft mile increased from 90 in 1978 to 103 in 1996, making craft and crew more productive.[49]

Productivity on a per-employee basis[50] has shown improvement almost continuously since 1947, increasing every year except 1980, 1981, and 1988 to 1991 (mostly years of recession, when reduced business activity in general worked against load factors). Despite all the benefits of competition, output per employee advanced much more slowly after 1978, when ongoing changes to the aircraft were not so economically meaningful. Gains of 6.4 percent per year from 1958 to 1978 slowed to 2.6 percent per year during the 18-year period ending in 1996. Once the hub-and-spoke system and computer reservations systems had already been implemented, the rate of increase in productivity slowed to 1.7 percent per year from 1986 to 1996. The following tabulation summarizes the percent change per year in output per person in air transport.

	Annual rate of change
1958–78	6.4
1968–78	4.8
1978–96	2.6
1978–86	3.8
1986–96	1.7

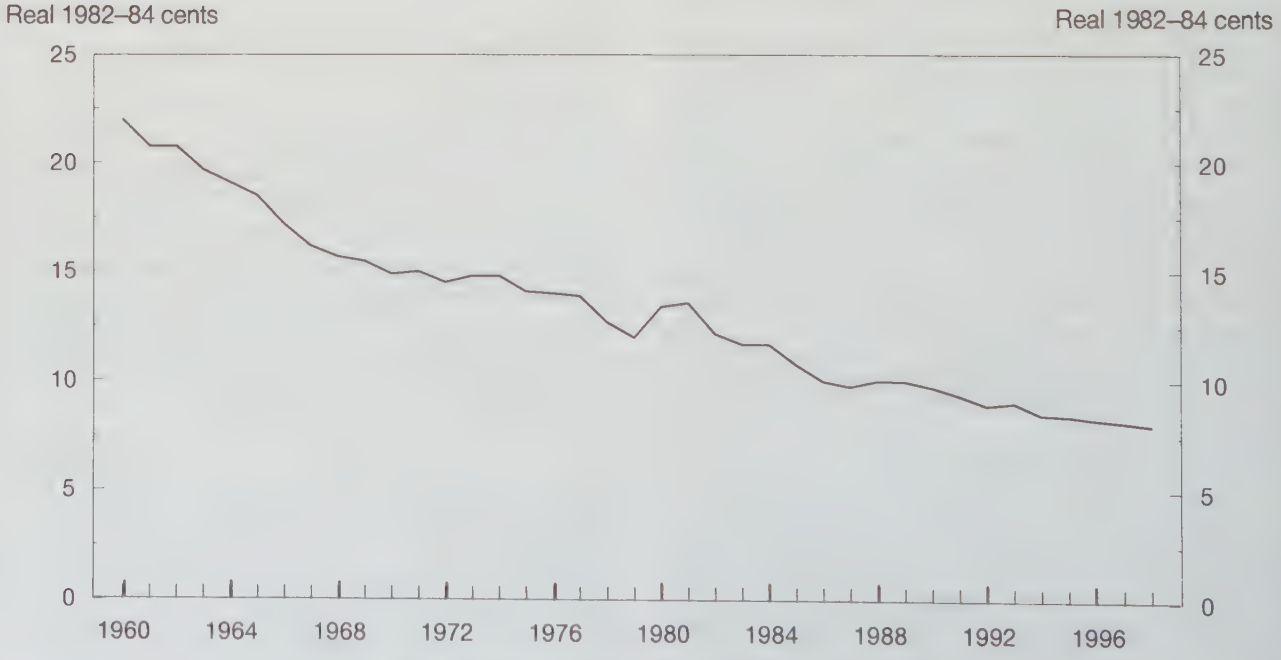
Because productivity has been rising more slowly in recent years, requirements for labor have been greater recently than

Chart 3. Number of carriers, fares, and industry output, 1971–96



SOURCES: Bureau of Transportation Statistics, U.S. Department of Transportation (number of carriers); Office of Productivity and Technology, BLS (output); Air Transport Association (real fares).

Chart 4. Fare per mile of U.S. scheduled airlines, adjusted for inflation, 1960–98



NOTE: The Consumer Price Index for all Urban Consumers (CPI-U) is used to adjust raw fare per mile.
SOURCE: Unadjusted fares are from the Air Transport Association.

they would have been if productivity had continued to rise at the faster rates of the past.

The use of smaller planes to reduce costs, while not directly relevant to *labor* productivity, is also an important means of economizing. Smaller aircraft are used more often to cut costs of equipment and fuel, even if labor productivity is reduced somewhat as a result. Smaller craft often are appropriate for more minor spoke routes.[51] Most aircraft also are configured with less room per seat to increase the number of seats and the potential revenues of each flight, reducing comfort but contributing to lower prices.[52]

The various means of increasing labor productivity and of increasing the productivity of capital contribute to lower costs that enable the airlines to reduce fares. Lower fares attract more passengers and contribute to growth and employment.

Safety

Another important long-term trend in the industry, seldom recognized as a contributor to industry growth in recent decades, is airline safety. The increasingly safe nature of commercial flight may be a factor in the public's increased flying. Rates of accidents and fatalities have declined greatly in the long term.[53]

As the possibility of deregulation was debated in the 1970s, critics predicted that the loss of regulation would result in a major decline in safety as smaller, less reliable airlines gained larger shares of traffic and as established carriers were pressured to reduce costs, including aircraft maintenance.[54] (Only *economic* regulation was being debated. Regulation *for purposes of safety*, including required maintenance of craft, specified training of pilots, and right-of-way rules in the sky, was never ended or even seriously considered for termination by any important party.) Trends in two measures of airline safety have remained favorable, although improvements have decelerated.

Passenger fatalities per million aircraft-miles is one established measure of air safety. Accidents per thousand departures may be a better one, though, for measuring the fitness of pilots, controllers, and equipment, considering that the crash of just one large aircraft can skew the fatality statistic. Departures and arrivals are the most hazardous normal operations because they involve the greatest proximity to the ground as well as the heavier traffic of the airport environment. Furthermore, the fatalities-per-miles measure is subject to distortion when the average length of a flight changes, but the rate of accidents per thousand departures is free of influence by the length of flights.

According to both statistical measures of safety, the air transportation system improved both before and after deregulation. Far greater improvement occurred in times closer to the beginning of substantial commercial aviation, because the relatively young industry had more problems to solve. (See chart 5.) The following tabulation will give an idea of the progress that has been made since 1958, although the year-to-year variability of figures makes precise analysis of progress in safety difficult.

	Average annual percent change	
	Fatalities per million aircraft miles	*Accidents per 1,000 departures*
1958–96	–2.1	–3.5
1958–78	–3.7	–6.1
1978–96	–.3	–.4

In 1996, 8.2 million scheduled departures entailed 32 accidents, including three fatal ones. The same year, 319 passengers out of 581 million carried were killed, implying a fatality rate of one death for every 1.8 million people boarded.[55]

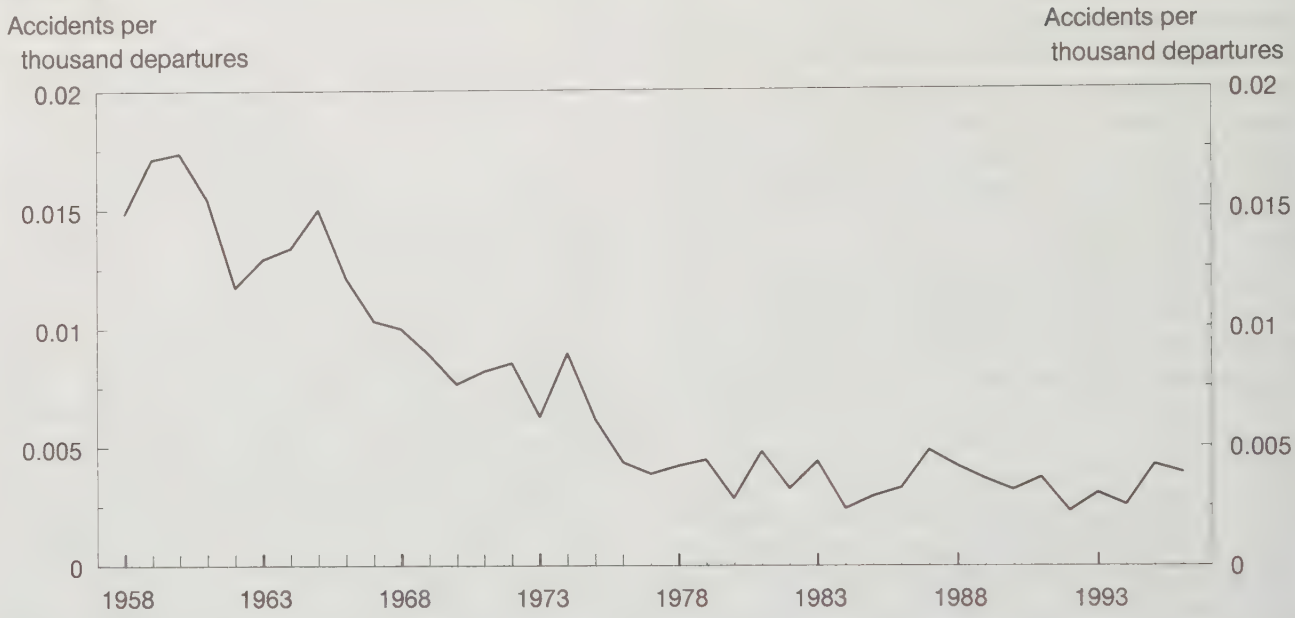
Because the most dramatic decreases in accidents occurred in the earlier decades of the period under study, it seems likely that most of the increase in the public's confidence in aviation also occurred during the earlier decades. If greater confidence in the safety of aviation contributes to the growth of business, the bulk of such economic effects were probably also in the earlier decades.

Analysis

In the last 40 years, in commercial aviation, fares after adjusting for inflation have declined, labor productivity has increased, and output and employment have increased vastly. Such trends appear to suggest continuous driving forces. Certain factors, such as at least some improvement in safety, general economic growth, and increased international trade have endured from the regulatory period to the free-market period and have continued to contribute to the growth of the industry. But by all accounts, great changes in the economics of aviation occurred. The pre-regulatory, regulatory, and post-regulatory periods each allowed for certain types of progress in the industry. The development of the airplane itself into a safe, fast, and efficient vehicle, primarily during the pre-regulatory and regulatory periods, allowed vast commercial progress. The development of radio navigation systems and air traffic control, also primarily before deregulation, reduced accidents, probably reducing the public's fear of aviation. Navigation systems and air traffic control also made air service more reliable because flight became sensible in a greater range of weather conditions. After deregulation, competition drove airlines to find ways to economize in operations to lower fares. Recent fares, after adjustment for inflation, are cheaper than ever.

General economic deceleration accounts for only part of the deceleration in the growth of air transport. Other explana-

Chart 5. Airline accidents per thousand departures, 1958–96



NOTE: Data are for Part 121 airlines, which are those subject to Part 121 of the Federal Aviation Regulations and include all airlines operating craft with over 30 seats.

SOURCE: Calculated from series from the Air Transport Association.

tions have to do with innovations that contributed to acceleration in growth as they were introduced and as they spread but now have been largely completed. Aircraft ceased to become larger or so radically improved in engine design as when the jet engine first came into commercial use. The time-saving and cost-cutting accomplished by the two major changes to the craft have long ceased to be new advantages over the operations of the recent past. Hub-and-spoke routing and computer reservations systems have become standard in the industry. They can no longer serve to accelerate growth, as they did when they were introduced and as they spread. The one-time technological and operational innovations of both the regulatory period and the post-regulatory period have been standard for years, and cannot now increase the rate of growth; ticket sales via the Internet are one possible exception. After 1986, increases in productivity, reductions in fares, and the growth of output and employment decelerated. Further innovation may be required if growth is to be as rapid as in the past. □

Notes

[1] Annual numbers of passengers carried starting in 1938 can be found in the "Safety Record of U.S. Airlines," Air Transport Association, on the Internet at **http://www.air-transport.org**.

[2] Real fares also are from the Air Transport Association, on the Internet at **http://www.air-transport.org**.

[3] Estimates of employment in this article are from the BLS Current Employment Statistics (CES) survey of establishments, unless otherwise noted. The CES program produces estimates of employees on all nonfarm payrolls, except in private households, based on a monthly survey of about 390,000 work sites. Data from the survey appear in the Bureau's monthly periodical, *Employment and Earnings*. See the box on page 3 for the special attributes of the estimates of employment used in this article.

[4] Output and productivity statistics used in this article are from the Office of Productivity and Technology, Bureau of Labor Statistics.

[5] Air Transport Association, *The Airline Handbook*, ch. 4, p. 2, on the Internet at **www.air-transport.org/handbk/chaptr04.htm**.

[6] Air Transport Association of America, *Air Travel Survey 1998* (Washington, 1998), p. V-1.

[7] Passenger-mile and ton-mile figures are from *National Transporta-*

tion Statistics 1998 (U.S. Department of Transportation, Bureau of Transportation Statistics, 1998), tables 1–10 and 1–11.

[8] Passenger-mile and ton-mile figures of the various modes are from *National Transportation Statistics 1998*, tables 1–10, 1–11 and *National Transportation Statistics 1997*, table 1–7, p. 15.

[9] International water tonnage is from *National Transportation Statistics 1996* (U.S. Department of Transportation, 1997), pp. 49, 50.

[10] Output figures are from the Office of Productivity and Technology, Bureau of Labor Statistics.

[11] Traffic figures are from the Air Transport Association, on the Internet at **http://www.air-transport.org**.

[12] *National Transportation Statistics 1998* (U.S. Department of Transportation, Bureau of Transportation Statistics, 1998), table 2–21.

[13] Figures for reasons for air travel are from the *Air Travel Survey 1998* (Washington, Air Transport Association of America, 1998), p. V-5.

[14] Domestic statistics are from *National Transportation Statistics 1998*, table 1–11. International statistics are for U.S. scheduled airlines and are from the Air Transport Association, on the Internet at **http://www.air-transport.org**.

[15] Figures are from the U.S. Department of Commerce, International Trade Administration, Tourism Industries. Flights between the U.S. and Canada or Mexico are excluded.

[16] International Trade Administration, Tourism Industries. Flights between the U.S. and Canada or Mexico are excluded.

[17] See "TIACA trustee projects industry growth, impact through 2015," *Presswire* (The International Air Cargo Association, July 7, 1997). Also see Gary Hendricks, "Hartsfield City Limits: Air cargo taking off at airport," *The Atlanta Journal*, Oct. 20, 1997, pp. E5 *ff.*

[18] Figures are from the Bureau of Economic Analysis, U.S. Department of Commerce, on the Internet at **http://www.stat-usa.gov/online.nsf/NIPAnav?openNavigator**.

[19] SIC is the acronym for Standard Industrial Classification. See *Standard Industrial Classification Manual 1987* (Washington, Office of Management and Budget).

[20] Gary Hendricks, "Hartsfield City Limits," *The Atlanta Journal*.

[21] See Steven A. Morrison and Clifford Winston, *The Evolution of the Airline Industry* (Washington, The Brookings Institution, 1995), pp. 28–31, on the subject of the relatively low profitability of airlines.

[22] Christopher Reynolds, "TRAVEL: Lawmakers and waning profits push airlines into voluntary reforms . . .," *Los Angeles Times*, June 27, 1999. See also Cynthia Corzo, "Airlines' Promises to Improve Customer Service Mean Little, Skeptics Say," *Knight Ridder Tribune Business News*, June 19, 1999.

[23] See Morrison and Winston, pp. 19–20.

[24] Calculated from available seat-mile and aircraft-mile statistics provided by the Air Transport Association. Also, the point that seating capacity is an important factor in costs is explained by the Bureau of Transportation Statistics, U.S. Department of Transportation in *Transportation Statistics Annual Report 1995*, p. 122.

[25] *Transportation Statistics Annual Report 1996* (U.S. Department of Transportation, Bureau of Transportation Statistics, 1996), p. 234.

[26] *The Airline Handbook, ch.* 1, p. 10.

[27] *Ibid., ch.* 4, p. 7.

[28] The average seats per craft were calculated by dividing total seat-miles by total aircraft miles. Therefore the average is a weighted average, with the weights being the amount of use (in aircraft miles) of each plane. The raw seat-miles and aircraft miles were obtained from the Air Transport Association.

[29] *The Airline Handbook*, ch. 1, p. 10.

[30] *Ibid.*, ch. 4, p. 7.

[31] *Ibid.*, p. 5.

[32] Richard H.K. Vietor, "Contrived competition: economic regulation and deregulation, 1920s–1980s," *Business History*, October 1994, pp. 1 *ff.*

[33] Stephen Breyer, *Regulation and its Reform* (Harvard University Press, 1982), p. 210.

[34] *Transportation Statistics Annual Report 1996*, p. 235.

[35] Figures provided by Air Transport Association, on the Internet at **http://www.air-transport.org**.

[36] *The Airline Handbook*, ch. 2, pp. 1, 2, and Vietor, "Contrived Competition."

[37] *The Airline Handbook*, p. 2.

[38] *Ibid.*, p. 4.

[39] Real yield (fare per passenger-mile) is from the Air Transport Association.

[40] *Transportation Statistics Annual Report 1996*, p. 236.

[41] *National Transportation Statistics 1998* (U.S. Department of Transportation, Bureau of Transportation Statistics, 1999), Appendix A.

[42] *Winds of Change: Domestic Air Transport Since Deregulation* (Washington, Transportation Research Board, National Research Council, 1991), pp. 103–7.

[43] *Winds of Change*, p. 107.

[44] *Airline Regulation: Changes in Airfares, Service, and Safety at Small, Medium-Sized, and Large Communities*, RCED 96–79 (Washington, General Accounting Office, 1996).

[45] Morrison and Winston, pp. 12–15.

[46] Vietor, "Contrived competition."

[47] *Transportation Statistics Annual Report 1996*, p. 242.

[48] Don Phillips, "Climbing out of the Red: Struggling Airlines Are Cramming Passengers into Planes in Bid to Survive," *The Washington Post*, June 18, 1995, pp. H1 *ff.*

[49] Calculated from aircraft-miles and passenger-miles, both from the Air Transport Association.

[50] The hours spent during layovers and how such hours are counted by employers for purposes of compensation make the hours worked by airline employees difficult to sample and estimate. Therefore labor productivity in air transport is calculated in terms of output per employee, rather than output per hour of work. Considerable changes in the average workweek, if they occur, may cause increases or decreases in output per employee. Such changes may distort the apparent efficiency of personnel. Nevertheless, this section will describe the trends of productivity in terms of the available unit, output per employee.

[51] Phillips, "Climbing out of the Red," and *The Airline Handbook*, ch. 4, p. 7.

[52] Phillips, "Climbing out of the Red."

[53] For information on occupational fatalities in aeronautics, see Peggy Suarez, "Flying Too High: Worker Fatalities in the Aeronautics Field," *Compensation and Working Conditions* (Bureau of Labor Statistics, Spring 2000), pp. 39–42. The article confirms a decreasing trend in fatalities.

[54] *The Evolution of the Airline Industry*, pp. 31, 32.

[55] Safety figures are derived from statistics provided by the Air Transport Association, on the Internet at **http://www.air-transport.org**.

Comparing earnings inequality using two major surveys

Some previous research suggests that discrepancies exist between the National Longitudinal Survey of Youth and the Current Population Survey in terms of earnings trends; when the sample is limited to full-time, year-round workers, however, the discrepancies are largely eliminated

Mark S. Handcock, Martina Morris, and Annette Bernhardt

Much of the research on the growing dispersion of earnings has relied on the March supplement to the Current Population Survey (CPS). As the research questions have turned to such issues as job instability and long-term wage growth, however, the focus often has shifted to longitudinal surveys, such as the Panel Study of Income Dynamics (PSID)[1] and the National Longitudinal Surveys (NLS).[2] In a recent unpublished but widely cited paper,[3] Peter Gottschalk and Robert A. Moffitt compare annual earnings trends from the PSID and two cohorts of the NLS with those of the CPS.[4] The authors find that reported earnings in the PSID and the original NLS cohort show roughly the same trends as the CPS, although the magnitudes are quite different.

For the later NLS cohort, however, known as the National Longitudinal Survey of Youth 1979 (NLSY79), Gottschalk and Moffitt find both significantly lower variance in reported annual earnings and a negative trend in variance over time (1979–1988)—at least for high school graduates. In addition, a more recently published paper using different methodology finds a similar discrepancy.[5] Because the findings of these studies stand in sharp contrast to the well-known "stylized fact" that the variance in earnings was increasing substantially during the 1980s, serious questions may be raised about the validity of the NLSY79 for research on the topic of recent trends in earnings inequality.

This article focuses on the comparison between the NLSY79 and the CPS, updating the Gottschalk-Moffitt analysis to 1994, the final year of data collection for the NLSY79 cohort. Because Gottschalk and Moffitt report few discrepancies in the trends for high school dropouts, the analysis is restricted to high school graduates. The article begins by replicating the Gottschalk-Moffitt analysis in order to verify the discrepancies in reported earnings between the two sets of data. Next, exploratory data analysis and respecified regression models are used to compare the trends and patterns, and to look for potential sources of the discrepancies. The final section discusses the implications of the findings for the validity of the two samples.

Data and methods

The present study generally follows the conventions adopted by Gottschalk and Moffitt. For their benchmark analyses, they select white males in the civilian noninstitutionalized population and divide the samples into cells defined by single years of age (from 16 to 31 years), level of education (less than a high school education, high school graduate or more), and survey year (1979-88).[6] Nominal annual earnings are adjusted for inflation and are expressed in constant (1982) dollars. Also, to avoid topcoding issues and reduce the problem of earnings nominally falling below minimum wage, the top and bottom 5 percent of the values are trimmed out within each cell. Because the trimming is based

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on the percentiles within cells rather than across the entire sample, the cells are the unit of analysis. As in the earlier paper, for the regression analyses, the CPS and NLSY79 samples are restricted to respondents who were aged 20 years or older in the survey year and whose earnings and number of weeks worked during the previous calendar year both were positive. The dependent variable is the within-cell standard deviation of trimmed real log annual earnings in the year prior to the interview.

Updating the Gottschalk-Moffitt analysis beyond 1988 requires some changes to the sample selection criteria due to changes in survey coding procedures that have taken place since then. In addition, to focus the sample more tightly on a homogeneous set of white males, some new exclusions are adopted. The following tabulation compares the sample selection criteria used in the present analysis with those used by Gottschalk and Moffitt in their study.

Criteria	*Gottschalk-Moffitt*	*Updated analysis*
Years	1979–1988	1979–1994
Age range	16–21 in 1979	16–21 in 1979
Race	White	White, non-Hispanic
Enrollment	Employment status recode-based exclusion	No student exclusion
Earnings	Positive	Positive
Regression sample:		
Age	20 years and older	20 years and older
Weeks worked	Positive	Positive

The most important difference in the criteria used here concerns the exclusion of students. On the basis of the "employment status recode" variable, Gottschalk and Moffitt exclude CPS and NLSY79 respondents who reported school attendance as their major activity during the survey week. But the coding for this variable in the CPS was changed in 1988 and it no longer identifies school attendance as a unique status. To preserve consistency across the time series, therefore, this analysis does not directly exclude students in this way. The overall impact of the change is relatively small, though, because several of the other exclusions (positive earnings and number of weeks worked, for example) capture much of the same population.[7]

For each data set, descriptive regression analyses similar to those used in the earlier study were conducted to compare the trends in earnings across the different samples. Let y_{at} be the standard deviation of the log annual wages for workers age a in year t. The model fit by Gottschalk and Moffitt is a simple linear specification:

$$y_{at} = \beta_0 + \beta_1 a + \beta_2 t + \varepsilon_{at} \quad a = 20,...,36; \; t = 79,...,94 \qquad [A]$$

where β_1 and β_2 are the coefficients for the linear effects of age and year, respectively. The present analysis extends the earlier study in two ways. First, the regression model is respecified and two alternative specifications are examined: a nonparametric model for the age term and a random-effects model to capture the longitudinal sample dependence in the NLSY79.

The regression residuals for model A show a marked curvilinear pattern in age that is roughly parabolic in nature. The time trend is of primary interest here, rather than the effects of age. Given the correlation between year and age in these samples, however, the age effect must be specified properly to obtain an accurate estimate of the time trend. As the linear age specification compromises the interpretation and statistical significance of the coefficients of both linear coefficients, the model is respecified using a nonparametric age effect, as follows:

$$y_{at} = \alpha_e + \beta_a + \beta t + \varepsilon_{at} \quad a = 20,...,36; \; t = 79,...,94 \qquad [B]$$

where β_0, ..., β_{36} are coefficients for each age and β is the regression parameter for the linear time trend.

It is important to note that the two previous studies have treated both the CPS and the NLSY79 as cross-sectional surveys, although the latter is a longitudinal survey. There are eight cohorts in the NLSY79, defined by respondent's age in 1979, and each cohort is followed across the entire 16 years of the series. Observations from the same cohort in the NLSY79 are likely to be correlated across time, a fact not taken into account in the Gottschalk–Moffitt analysis, the study by Thomas MaCurdy and others (cited earlier), or in the models (A and B) shown above. The cohort sample dependence can be modeled in one of two ways—as a fixed effect or as a random effect. Adding a fixed effect to either model A or model B is not possible because the parameters for age, year, and cohort are perfectly confounded (cohort = year minus age). A random-effect specification is therefore required and also is more appropriate from a substantive standpoint. The interest here is not in the cohort effects as indicators of inherent differences among specific age–year groups. The cohorts are simply samples from their populations, and this study seeks to capture the covariance in these samples over time, rather than an estimate of a cohort-specific level effect. Therefore, model B is respecified for the NLSY79 to include a random effect for cohort, as follows:

$$y_{atc} = \alpha + \beta_a + \beta t + \varepsilon_{tc} \quad a = 20,...,36; \; t = 79,...,94; \; c = 1,...,8; \qquad [C]$$

$$\varepsilon_{tc} = \phi_c + \sigma_{tc}$$

where β_{20}, ..., β_{36} are coefficients for each age, β is the coeffi-

cient for the linear effect of year, and ϕ_1, ..., ϕ_8 are random variance components for each cohort. Because it requires no assumptions about the parametric form of the random cohort effects, a generalized estimating equation (GEE) is used to fit the model.[8]

For all of the linear models, weights are used to reflect the differing variances of the y_{at} component of the model.[9] In the GEE models, the variance-covariance weight matrix includes covariance estimates in the off-diagonal cells to adjust for the longitudinal cohort sample dependence. All models are fit using the *S-PLUS* statistical program.[10]

The second way in which the present study extends the Gottschalk–Moffitt analysis is by reexamining the discrepancies in earnings dispersion by labor force status. Gottschalk and Moffitt use several indicators as proxies of labor force attachment in an attempt to explain the discrepancy in earnings trends: the employment status recode variable, more than 40 weeks worked in the past year, and age 23 years and older (presumably to exclude most college-age students). The present study takes a more direct approach, subdividing the sample into two groups: full-time, year-round workers (FTFY) and others (non-FTFY). The FTFY group comprises those who worked 35 or more hours per week and 50 or more weeks per year during the previous calendar year; the non-FTFY group comprises those who had positive earnings and hours worked but who did not work work full time and year round. For the CPS, the constructed variable that identifies this status is used, and for the NLSY79, hours and weeks are selected directly. The definition is the same in both samples. The idea here, as in the earlier study, is to compare workers with relatively strong attachments to the labor force with workers who are less attached to the labor force.

Results

Tables 1 and 2 provide summary statistics for labor force attachment and annual earnings for workers in both data sets in 1979, the first year of the series. The sample selections reflect the updated analysis criteria and can be compared with the corresponding tables in the paper by Gottschalk and Moffitt. Table 2 shows patterns similar to those found in the earlier study—a significantly larger portion of the NLSY79 sample reports working 40 weeks or more per year. While fairly pronounced in 1979, this discrepancy in the number of weeks worked during the year declines in subsequent years.

Despite the difference in reported number of weeks worked, the earnings figures in table 2 are quite similar across the two samples. There are no systematic differences in either means or variances. The numerical values are different than those reported by Gottschalk and Moffitt, due largely to the inclusion here of students who had been excluded in the earlier study on the basis of the employment status recode variable. The bottom portion of the table shows the statistics for FTFY respondents—a group likely to exclude such students—and here the two samples become very close.

The trends in earnings variances over time for the two samples are shown in chart 1. They show a general decrease in earnings dispersion with age, and this pattern is much stronger than the trend over time within specific age groups. The NLSY79 estimates are more variable, reflecting the smaller sample sizes. Net of the differences in variability between the two samples, the greatest differences between them occur within the younger age groups—those aged 19 to 24 years. These differences are not very systematic, and in particular, they do not appear to take the form of consistently stronger increasing trends over time in the CPS. There is some conver-

Table 1. Basic descriptive statistics for 1979 survey year

Age	High school graduates (in percent)		Unweighted *N*		Among high school graduates				Percent working full time, year round	
					Percent working at least 1 week during the year		Percent working 40 or more weeks during the year			
	NLSY79	CPS	NLSY79	CPS	NLSY79	CPS	NLSY79	CPS	NLSY79	CPS
Total (all ages)	44.7	57.8	796	3,261	95.6	92.5	52.9	48.8	26.1	28.4
16	0.4	0.2	1	4	...	...	...	...	...	...
17	.9	.5	4	30	...	75.9	...	19.0	...	3.4
18	45.6	47.5	145	507	96.3	90.3	39.2	37.3	10.5	15.3
19	79.3	80.3	218	903	95.2	91.7	49.0	43.4	23.5	22.6
20	86.7	88.4	224	885	94.4	93.5	62.3	50.1	36.4	32.4
21	87.4	87.5	204	932	96.6	93.9	54.6	59.1	27.2	37.1

Table 2. Basic income statistics for survey year 1979

Age	Unweighted *N*		Income mean		Covariance		Log income mean		Standard deviation	
	NLSY79	CPS	NLSY79	CPS	NLSY79	CPS	NLSY79	CPS	NLSY79	CPS
All workers										
16	1	2	...	1,221	...	...	...	7.11	...	0.00
17	2	28	2,608	3,071	463	3,323	7.84	7.54	.35	1.08
18	118	601	3,814	4,163	1,416	1,621	8.02	8.12	.73	.69
19	198	1,100	6,120	5,819	2,716	2,817	8.45	8.39	.80	.80
20	214	1,160	8,373	6,643	2,661	2,938	8.84	8.53	.67	.80
21	202	1,230	8,812	8,991	3,793	3,768	8.82	8.83	.79	.81
Full-time, year-round workers										
16	0	0	...	...	...	...	...	...	...	...
17	0	1	...	3,497	...	...	...	8.16	...	...
18	12	93	5,380	7,547	839	805	8.48	8.87	.55	.36
19	45	245	10,067	10,414	1,354	1,012	9.13	9.18	.47	.42
20	83	385	11,413	10,823	1,607	1,066	9.24	9.23	.51	.38
21	51	481	13,648	13,374	1,466	1,581	9.46	9.42	.39	.48

NOTE: Statistics are calculated using sample weights and 5 percent trim of top and bottom earnings. Unweighted *N* reflects post-trim cell values.

gence between the two samples for the older respondents, but the earnings dispersion for the NLSY79 is about 10 percent lower, on average, than for the CPS. By contrast, the cell median incomes in the NLSY79 are consistently about 20 percent higher than the corresponding CPS cell means (data not shown here). Once the two samples of respondents settle into their prime working years, then, the annual earnings reported in the NLSY79 are both higher and less variable than those reported in the CPS.

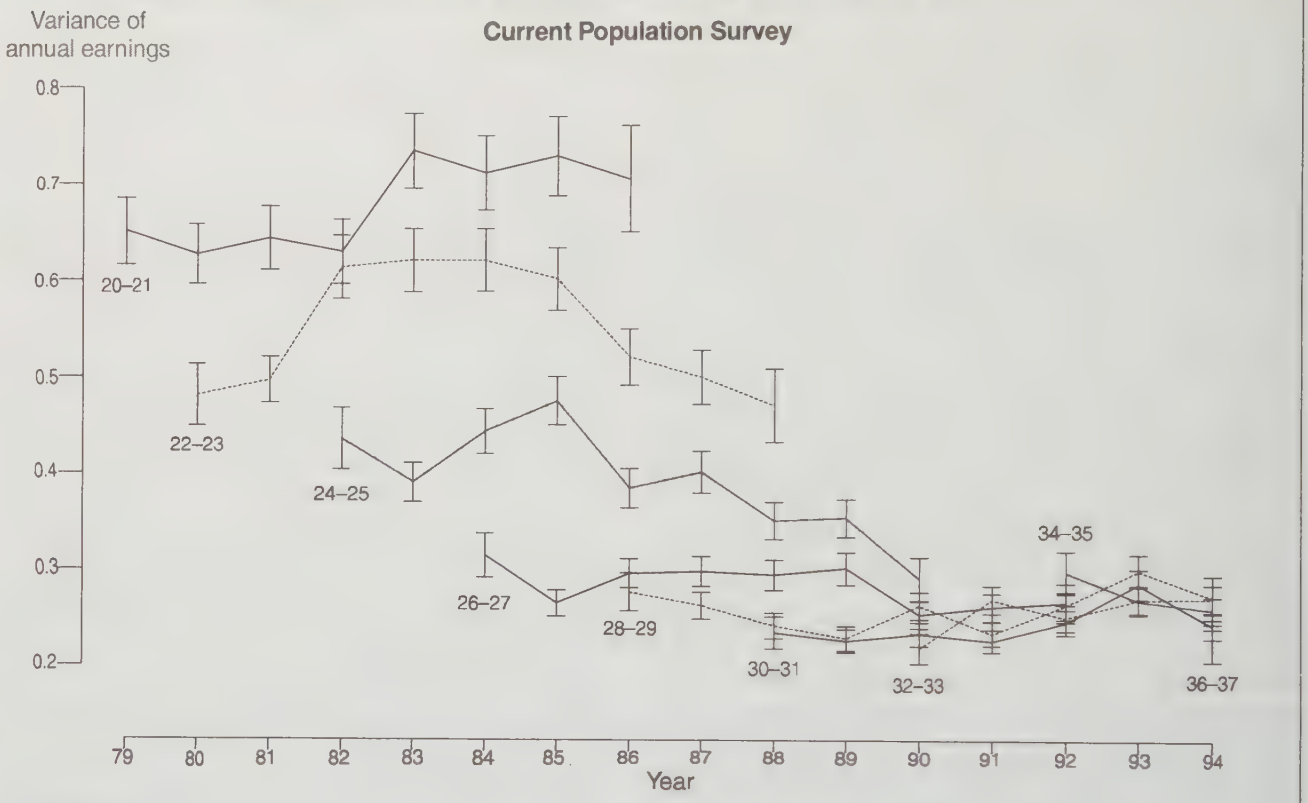
The standard deviations are modeled by reverting to cells defined by survey year and single year of age. Much like the Gottschalk–Moffitt study, attention here is restricted to those aged 20 years and older, with positive weeks worked in the previous calendar year. The results are displayed in table 3. All coefficients are multiplied by 10 to be consistent with the values reported by Gottschalk and Moffitt. The coefficients can be interpreted as the change in standard deviation over a 10-year period.

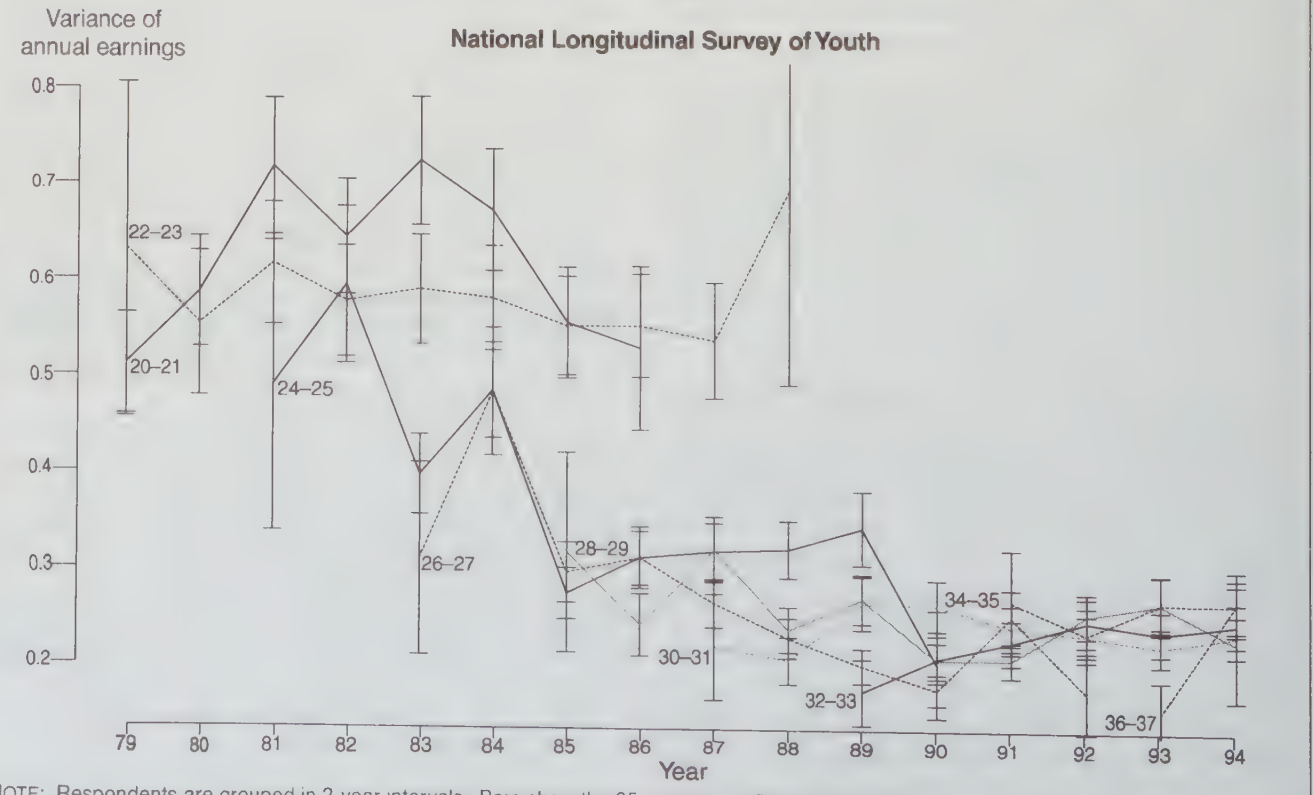
The results obtained by Gottschalk and Moffitt are shown in the first three rows of the table for comparison. Consider first their results based on the employment status recode schooling exclusion. For the CPS, they find a positive but not significant upward trend in earnings dispersion, while the corresponding trend for the NLSY79 is negative and also not significant. Using a more specific measure of school enrollment over the past year that is available in the NLSY79 to exclude students in that sample, they find the coefficient for the trend in dispersion changes sign and becomes as strongly positive as it had been negative, though still not significant. Further restricting this NLSY79 sample to those aged 23 years and older, they find the coefficient changes sign again and is now much more strongly negative than it had been, though still not significant.

The Gottschalk–Moffitt estimate of the time trend is thus extremely sensitive to the sample exclusions. The same is true in the present analysis, in part due to the relatively small number of observations in each cell after the screens for positive earnings and weeks worked and the 10-percent trimming. This makes for a high level of instability in the cell-specific estimates of the earnings variance, and these in turn have a large impact on the within-age trend estimates. The latter is due to the interaction between the model, which estimates the time trend within age, and the structure of the sample. While the two surveys cover 16 years, age groups are observed for, at most, 8 years, and the average for persons aged 20 years and older is 6.3 years. The moving cohort window is thus not an ideal structure for capturing trends within age over time. When drawing inferences about the discrepancies between the two samples, it should be kept in mind that the estimates are not particularly robust.

The remaining rows in table 3 present the results from the updated analysis. In the first set, we restrict the sample to the years used by Gottschalk and Moffitt, 1979–1988. The differences between the results for model A and the results in the first row of the Gottschalk–Moffitt figures reflect the difference in the sample restrictions between the two analyses—namely, the inclusion in this analysis of students who were excluded from the earlier study on the basis of the CPS employment status recode, as well as the exclusion here of Hispanics. The impacts are not dramatic, with the CPS coefficient becoming slightly less positive under the new sample restrictions. The NLSY79 coefficient becomes more

Chart 1. Variance of log annual earnings for employed high school graduates by age/year cells, Current Population Survey and National Longitudinal Survey of Youth, 1979–94





NOTE: Respondents are grouped in 2-year intervals. Bars show the 95-percent confidence intervals.

negative and now also is statistically significant, though in magnitude it still lies within the range of estimates reported in the earlier study.

When a nonparametric specification for age is adopted in model B, the discrepancy declines—the CPS coefficient increases modestly, and the NLSY79 coefficient becomes much less negative. When the random effect for the longitudinal cohort dependence in the NLSY79 (model C) is added, the coefficient for the time trend again becomes slightly less negative, and now it is about 30 percent lower than the initial estimate in model A. While the numerical results obtained in the earlier study are not replicated exactly, the general pattern is replicated, showing an increasing trend for earnings dispersion in the CPS and a decreasing trend for the NLSY79 . The magnitude of the discrepancy and of the negative trend in the NLSY79 becomes smaller in both of the respecified models.

The next set of results shown in table 3 (labeled all workers) updates the analysis to 1994. For the CPS, the trend in earnings dispersion is now significantly negative in model A, as is the trend for the NLSY79. With the nonparametric age effect, the sign of the CPS coefficient changes to become positive (although weakly so and not significant), while the magnitude of the NLSY79 coefficient is still negative but reduced by about half. Adding the random effect to the NLSY79 slightly increases the magnitude of the negative trend, but it is still 40 percent lower than the estimate under the initial model. Respecifying the model once again reduced the discrepancy between the two samples.

The results from model C are graphically displayed in chart 2. The top panel plots the nonparametric age-effect estimates. The results show that earnings dispersion is highest among the young, and it falls steeply through the mid-twenties age groups. For the CPS, dispersion then begins to rise slightly, while for the NLSY79, the decline continues through the early-thirties age groups, though less steeply, and then also begins to rise. The nonlinearity for the CPS is more pronounced, which helps to explain why the nonparametric specification in Model B has a relatively larger impact on the trend coefficient for that sample.

The bottom panel of chart 2 shows the partial regression plot of earnings dispersion by year after adjusting for age. The trend lines are nonparametric local-linear estimates. As can be seen, the CPS trend is modestly positive. The plot for the NLSY79, by contrast, clearly shows a negative trend. Note, however, the large residual variation. The magnitudes of the time trends for both samples are modest relative to the residual variability.

Next, the analysis is restricted to full-time, year-round workers in order to determine whether the discrepancies in earnings dispersion between the two samples persist among the core group of workers with the strongest attachment to the labor force. This group becomes an increasingly larger share of the two samples over time, rising from about 35 percent of the regression-eligible sample in 1979 to 80 percent in 1994. If the trend differential persists for these workers, then it is a fundamental and pervasive discrepancy. If not, then the samples are comparable for the core workers, and some progress has been made in narrowing down the possible sources of the problem.

The trend coefficient under model A reproduces the discrepancy observed above, but the negative trend for the NLSY79 is substantially smaller than in all of the previous analyses. The estimates from model B are consistent with the earlier pattern—that is, the discrepancy narrows as the trend becomes more positive for the CPS and less negative for the NLSY79. When the random effect for the sample dependence in model C is added, however, the NLSY79 coefficient changes sign, becoming strongly positive and similar in magnitude to the CPS coefficient, though not statistically significant. Under model C,

Table 3. Regression results

Sample restriction and model	CPS	NLSY79
Gottschalk-Moffitt analysis:		
CPS—not in school	0.019	–0.038
NLSY79— nonenrolled	...	.038
NLSY79— 23 years and older	...	–.100
Updated analysis:		
1979–88 only		
A	.015	–.124
B	.020	–.093
C	...	–.089
All workers, 1979–94		
A	–049	–.165
B	.009	–.085
C	...	–.092
Full-time year-round workers, 1979–94		
A	.025	–.030
B	.032	–.020
C	...	.036
Part-time, part-year workers, 1979–94		
A	.030	–.126
B	.042	–.096
C	...	–.116
Full-time, year-round workers, 1979–94, excluding self-employed		
A	.033	-.019
B	.041	-.004
C	...	.027

NOTE: Model A specifies linear effects for both age and year, model B specifies a non-parametric age effect, and Model C includes a random effect for longitudinal cohort dependence in the NLSY79.

then, both samples of full-time, year-round workers show a positive trend in earnings dispersion of comparable magnitude.

The results for the other (non-FTFY) workers show the opposite pattern, with the discrepancy very large under model A and virtually unchanged under model C. For these workers, opposite trends are seen in earnings dispersion for the two samples—dispersion grows over time in the CPS, while it declines over time in the NLSY79. The pattern of statistical significance is also different for this subgroup, with the NLSY79 trends testing highly significant and the CPS trends testing only modestly significant.

The age effects and partial regression plots for model C for the full-time, year-round workers and for the other workers are shown in chart 3. The pattern of higher dispersion for older NLSY79 respondents also is visible here in both subgroups. The smoothed trend lines are clearly different, however, with the FTFY workers in both the CPS and NLSY79 samples now showing a weak positive trend. The residual variability also differs: it is now lower for the FTFY workers and higher for the non-FTFY workers. The smoothed trend lines do not tell an entirely unambiguous story—when the endpoints are excluded, a different trend sometimes emerges. The regression line would be even more strongly influenced by the high leverage points at the extremes, simply reinforcing the earlier point that caution is appropriate when drawing inferences from any of the trend coefficients estimated from these samples.

One final analysis was conducted in which the self-employed were excluded. This is a group known to have highly variable earnings. They are almost universally excluded in studies of earnings inequality because their earnings determination process is fundamentally different from that of wage and salary workers. Excluding the self-employed, the pattern obtained is basically the same as that of the full sample of FTFY workers: in the final specification of model C, both samples again show a positive trend of similar magnitude in earnings dispersion over time.

These analyses suggest that the earnings dispersion discrepancy found by Gottschalk and Moffitt results largely from the specification of their regression model as well as a trend that appears to be driven by workers who do not work full time and year round. To examine the latter, chart 4 shows the trends in earnings dispersion by age-year cell separately for FTFY and non-FTFY workers.[11] The trends for FTFY workers look similar for the two samples—that is, both groups show a modest upward trend. The age effects discussed earlier (see chart 1) are completely absent here. In the graph for non-FTFY workers, by contrast, the CPS shows a fairly stable pattern of earnings dispersion over time, while the trend for the NLSY79 is somewhat negative. This clearly is what is driving the negative trend in the NLSY79 data when both groups of workers are combined. For non-FTFY workers, the age differences are absent as well. Thus, what at first appears to be an age effect in the graph for all workers actually is a composition effect—as age increases, the majority of workers shift from non-FTFY status to working full time and year round.

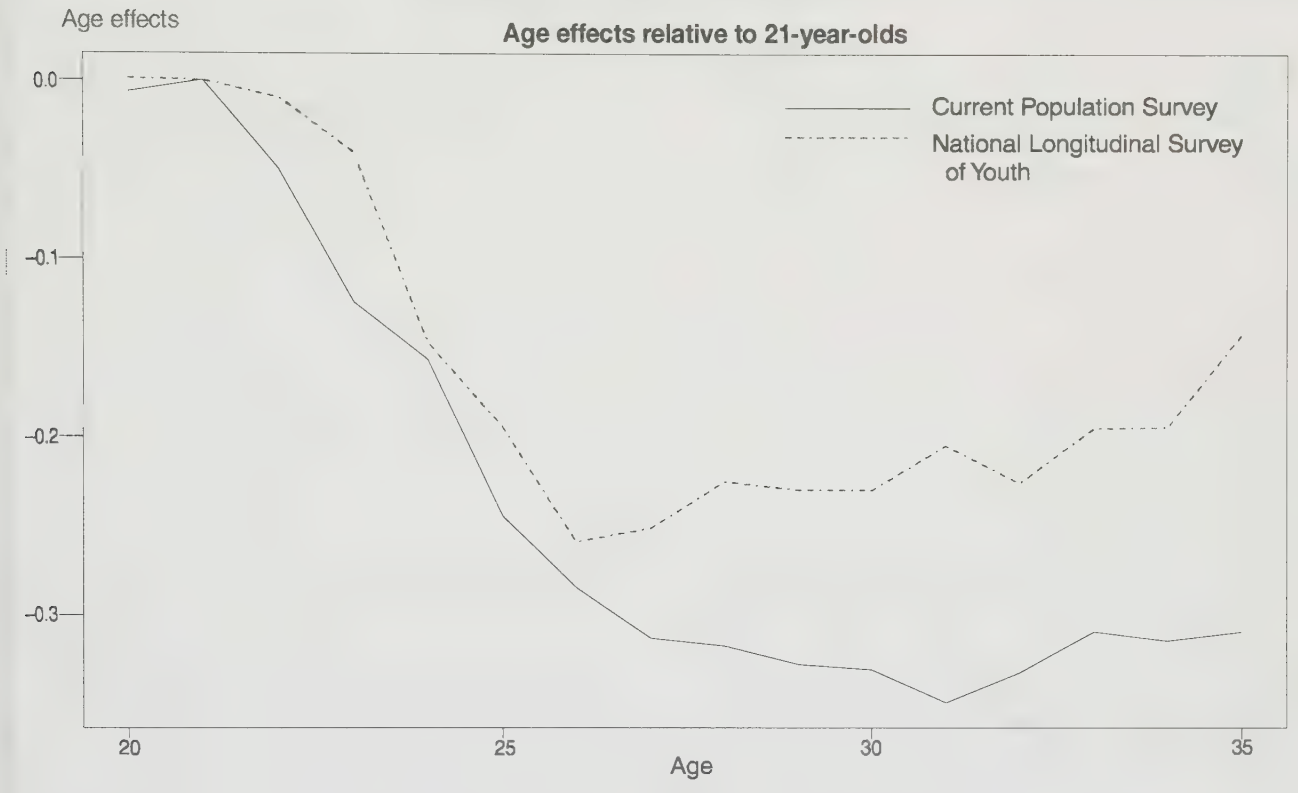
To better understand the nature of these discrepancies, it is useful to look at estimates of the distributions themselves. Chart 5 shows the 1979 earnings densities for the two samples as an example.[12] The top panel corresponds to all workers. While the two distributions are similar at the higher earnings levels, the CPS sample has a longer, denser lower tail than the NLSY79 sample. The bottom panel shows the corresponding distributions for non-FTFY workers. The CPS distribution is strongly downshifted, indicating lower levels of reported earnings compared with the NLSY79, and the bottom tail of the distribution for these workers reaches much further down the earnings scale. The location of the lower tail of the non-FTFY earnings density, from about 6 to 8 on the log scale, corresponds exactly to the location of the lower tail differences in the distribution for all workers. The plot for FTFY workers, not shown here, looks much like the plot for all workers, without the greater relative density in the lower tail of the CPS.

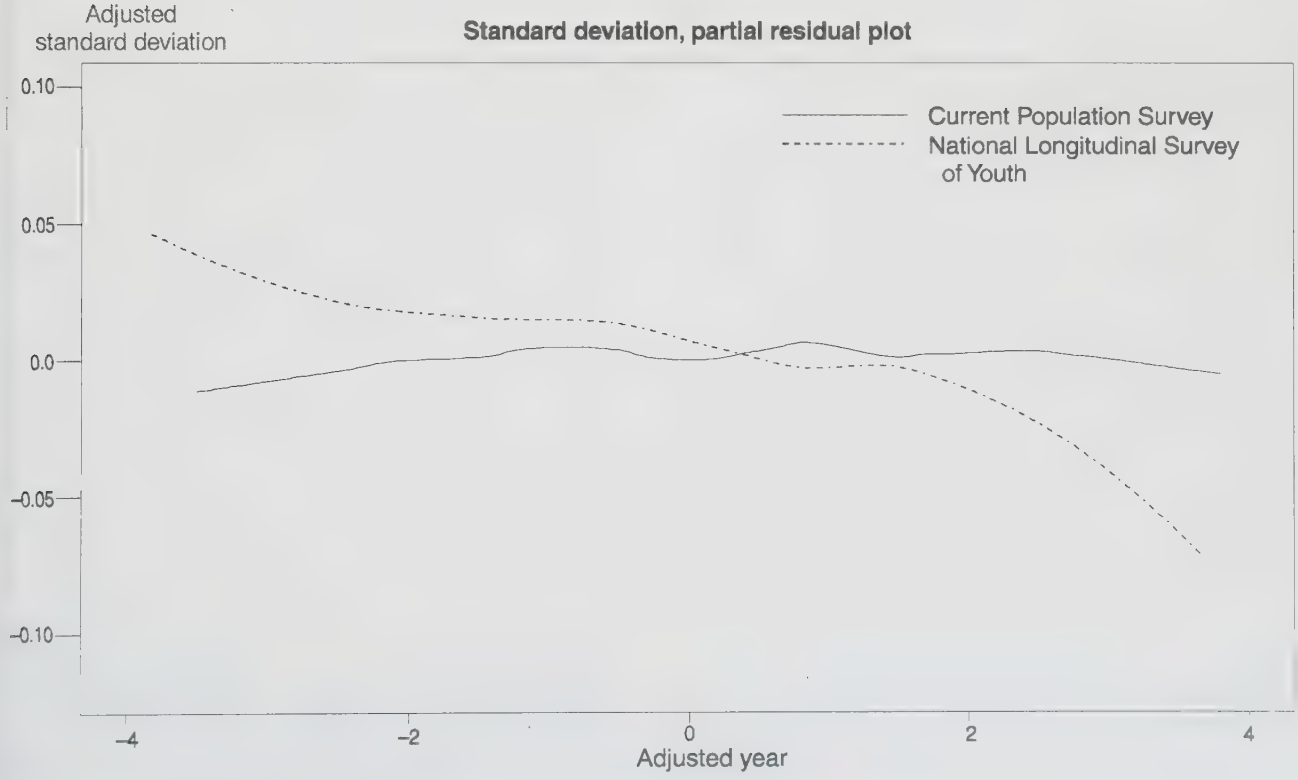
This lower tail discrepancy becomes more pronounced over time, as can be seen by the 90:50 and 50:10 earnings ratios for non-FTFY workers shown in chart 6. The 50:10 ratio for the two samples is relatively similar at the start of the series, but the CPS ratio increases over time while the NLSY79 ratio declines. Given the consistently lower median reported earnings in the CPS, the rise in the 50:10 ratio implies an increasingly longer tail at the bottom of the distribution than that observed in the NLSY79. The 90:50 ratios are more similar for the two samples, with both showing a downward trend over time, though the timing of the decline is different. The variance differential between the two samples is thus being driven primarily by the discrepancies in the lower tails. Specifically, it is being driven by the longer lower tail of the CPS non-FTFY earnings distribution.

Discussion

The discrepant findings in the trends in annual earnings dispersion between the CPS and the NLSY79 appear to be a function of the model specification and the non-FTFY workers. Regression diagnostics clearly show that a linear specification for age is not appropriate, and fitting a nonparametric effect reduces the discrepancy in the estimated dispersion trends by one-third to one-half. Treating the two samples as cross-sectional, thus ignoring the longitudinal cohort dependence in the NLSY79, also is not appropriate. Modeling the cohort dependence in the NLSY79 changes the estimates of the dispersion trend, especially when the sample is restricted to FTFY workers.

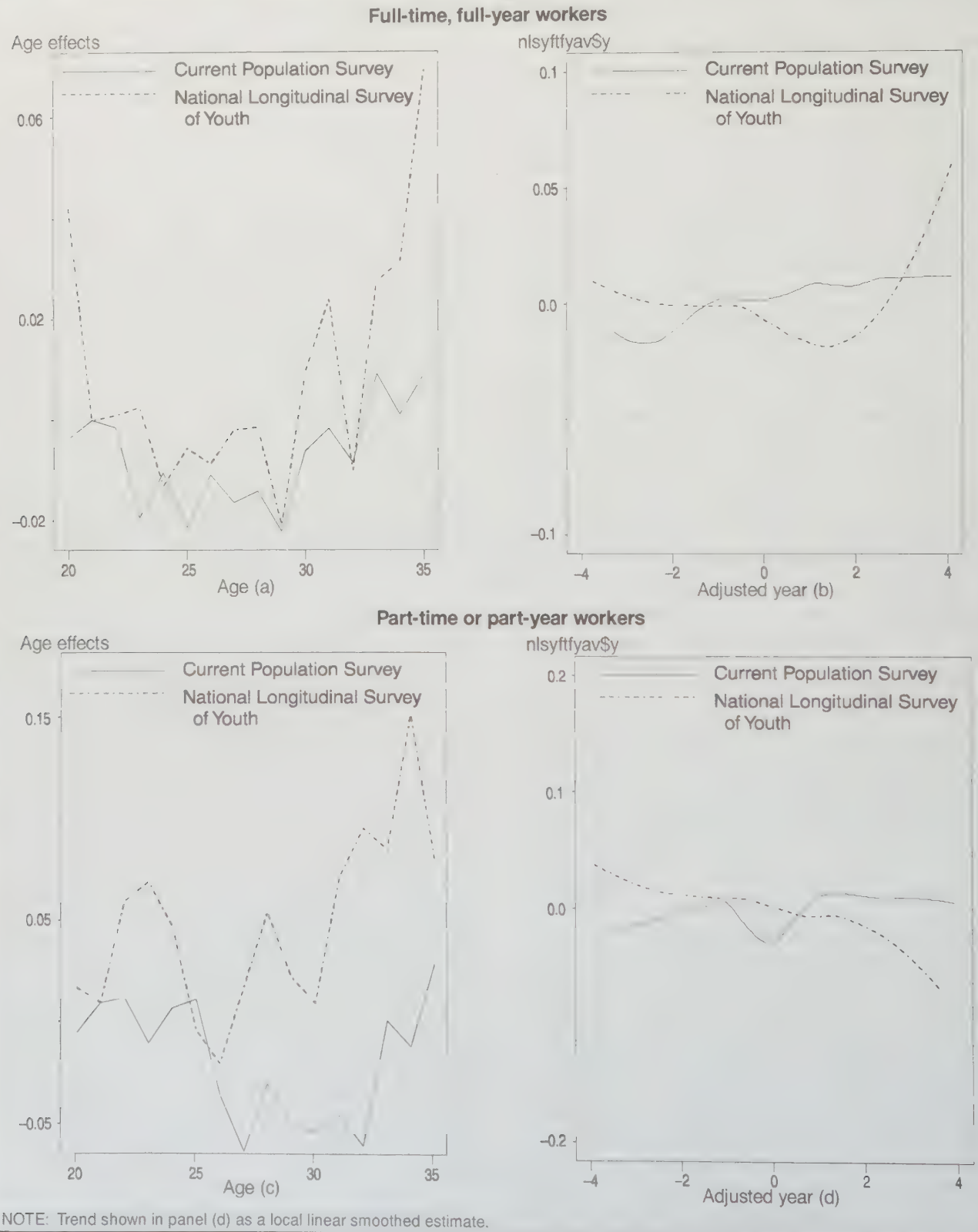
Chart 2. Estimated age effects, regression results under model C





NOTE: Regression results are for both full-time, full-year and non-full-time, -full-year workers. Trend shown as a local linear smoothed estimate.

Chart 3. Estimated age effects relative to 21-year-olds by full-time/part-time status, and standard deviation partial residual plot, regression results under model C



NOTE: Trend shown in panel (d) as a local linear smoothed estimate.

Chart 4. Variance of log annual earnings by age/year cells, 1979–94

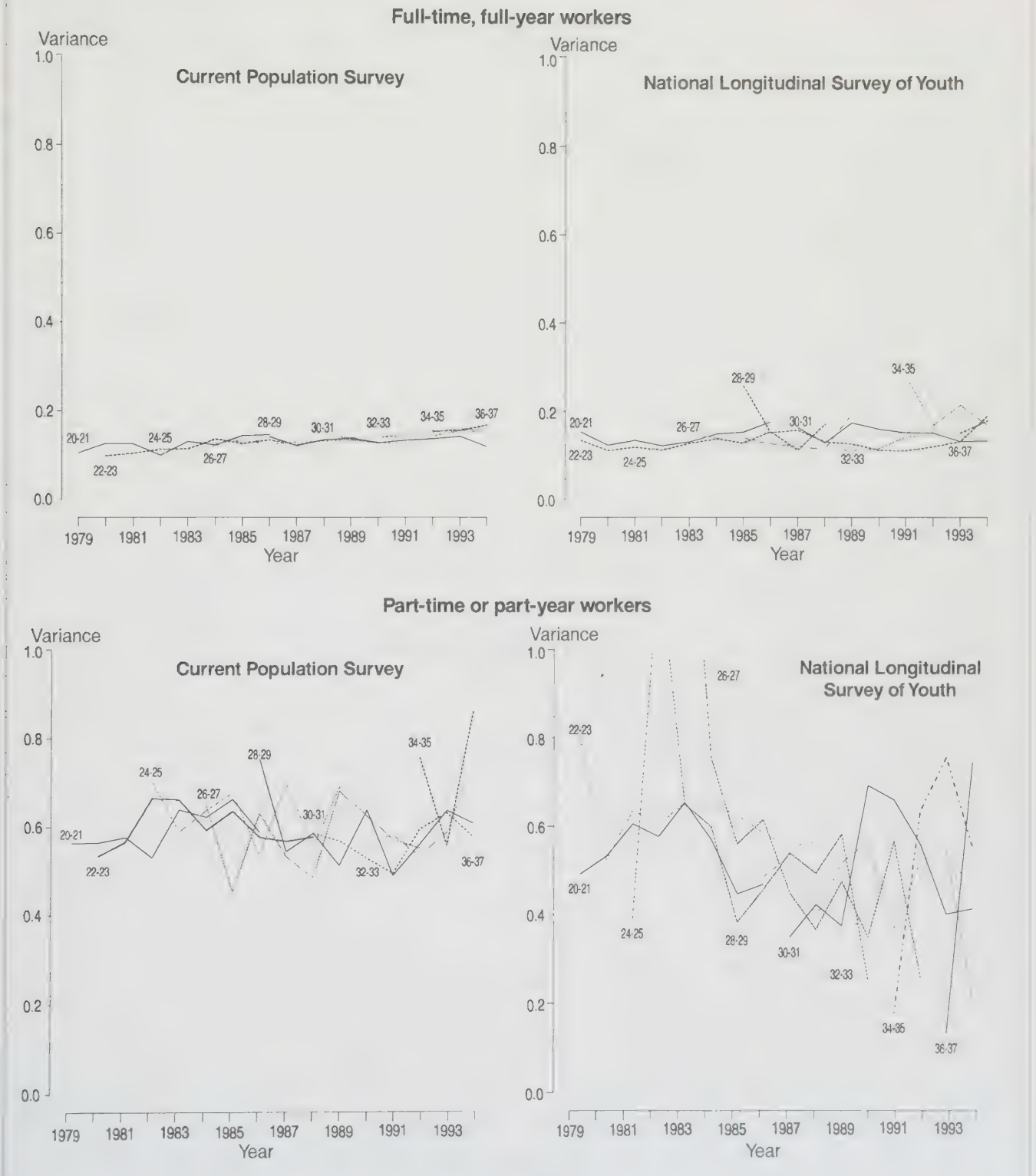
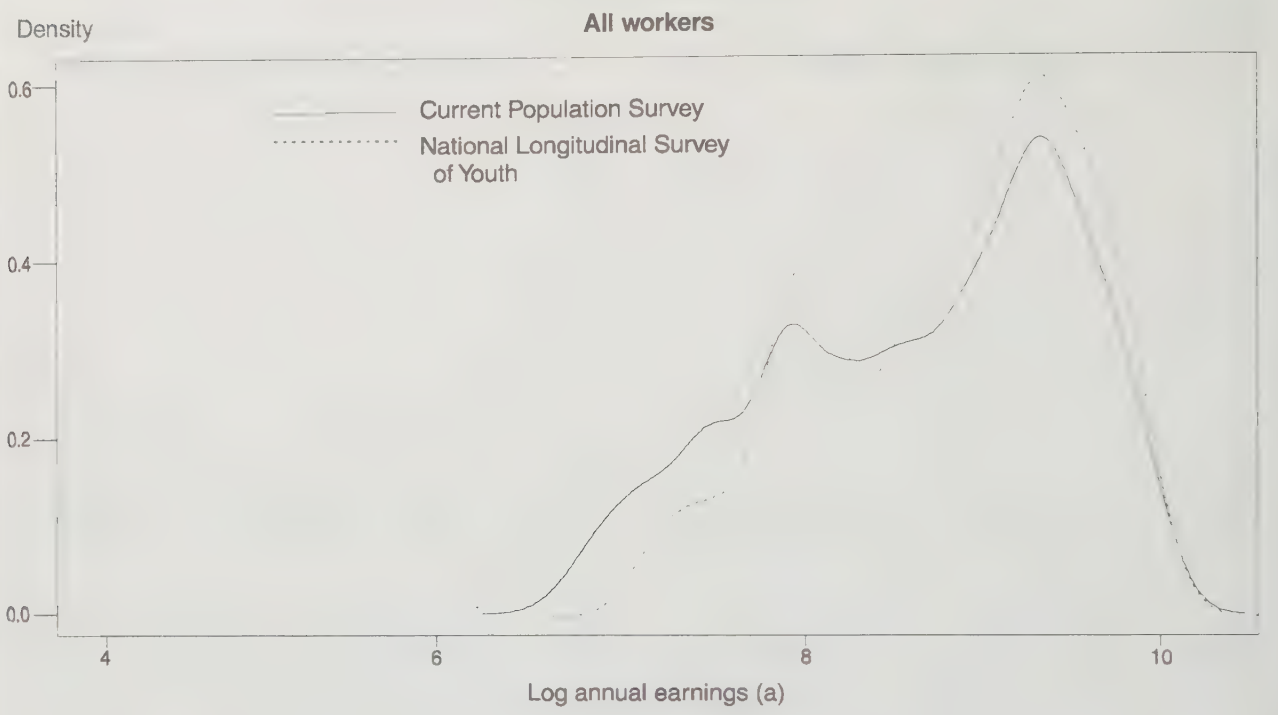


Chart 5. Annual earnings density estimates, 1979



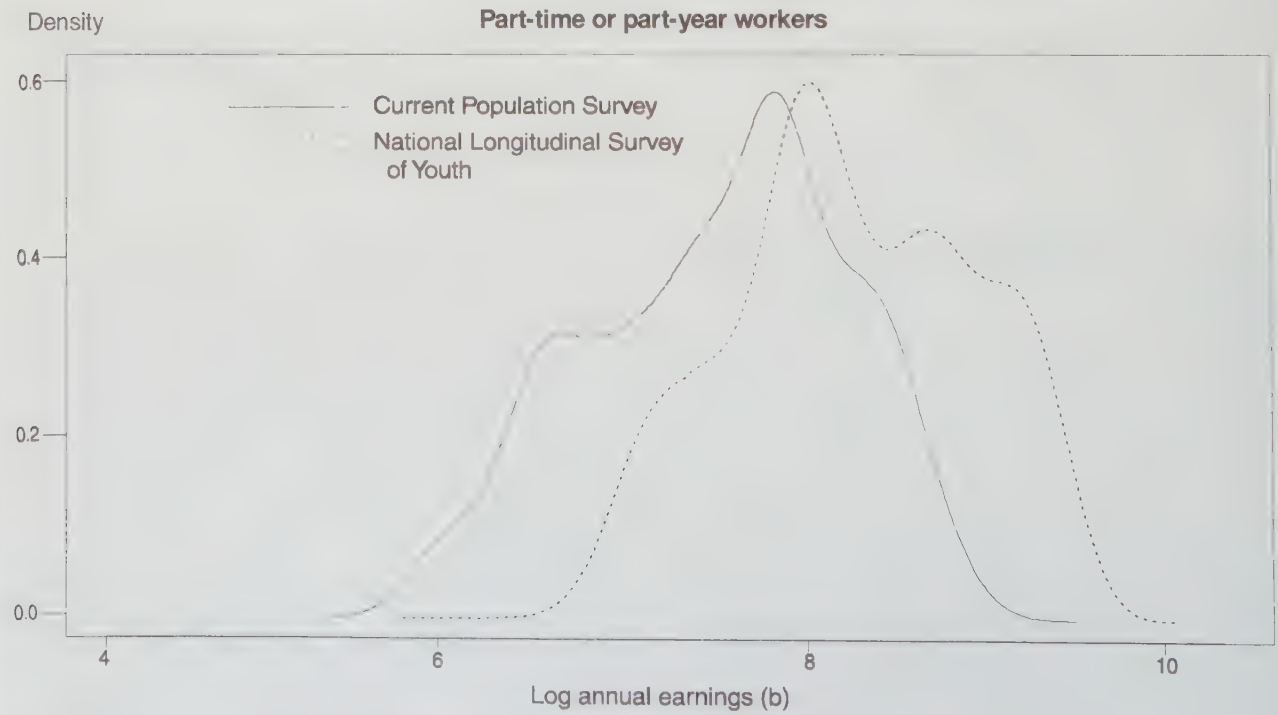
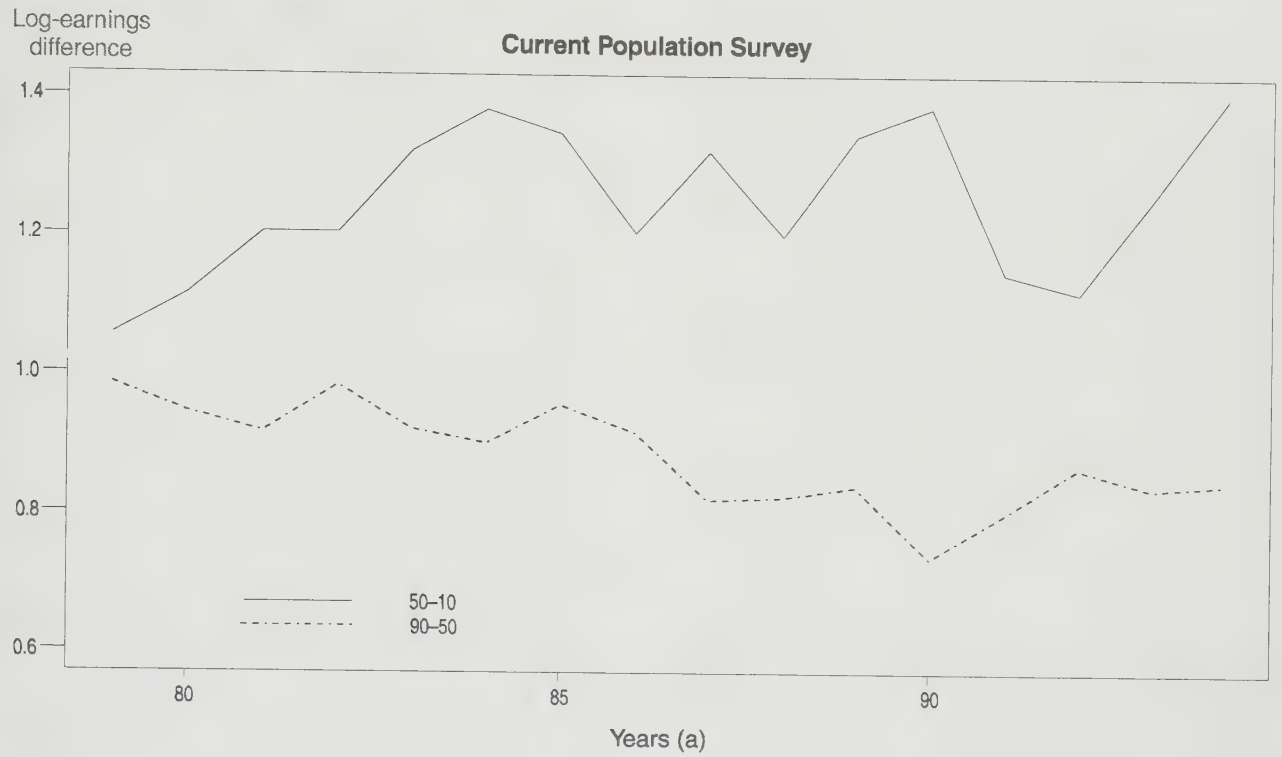
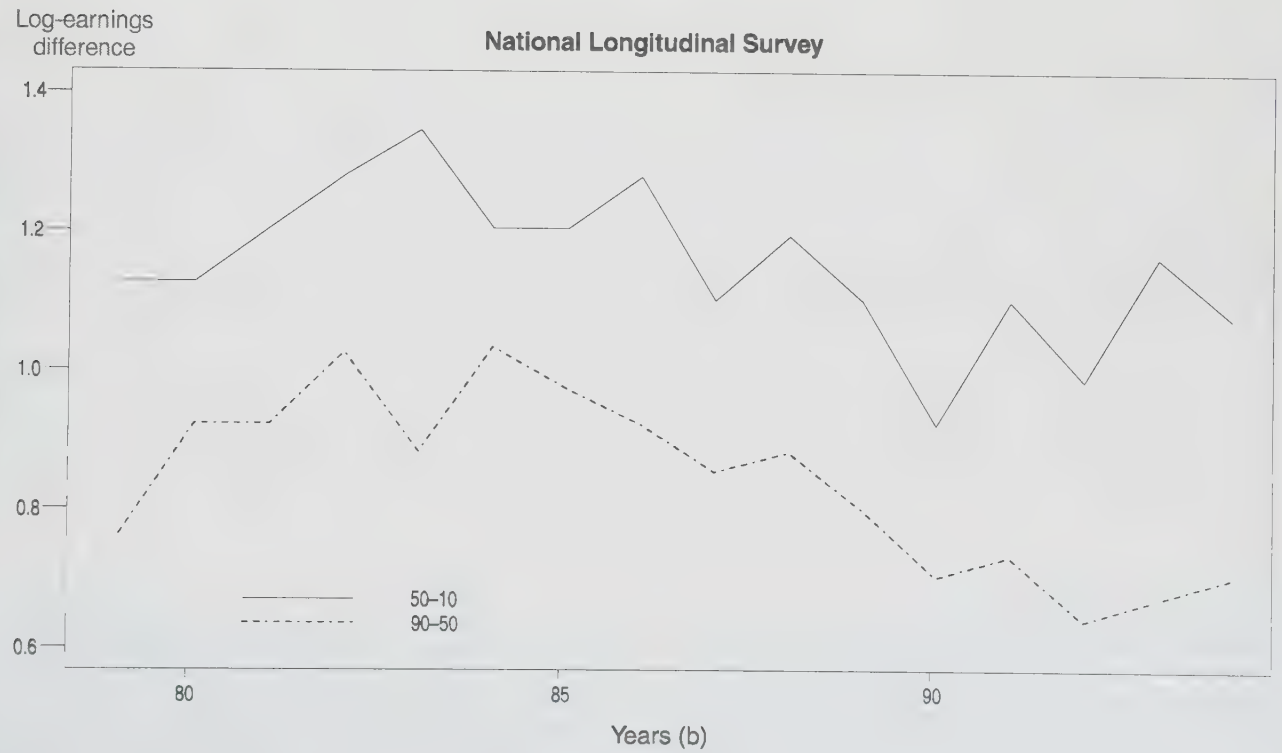


Chart 6. Trends in the 90:50 and 50:10 annual earnings ratios, 1979–94





After these corrections, the earnings dispersion trends for FTFY workers look remarkably similar for the two samples. Formal analysis confirms this visual impression—the estimated trends in earnings dispersion are nearly identical. Thus, restricting the samples to FTFY workers, no significant discrepancy in earnings variance is found between the two data sets: both the CPS and NLSY79 show a general trend of increasing earnings dispersion over time.

The trends in earnings dispersion among non-FTFY workers, however, appear to be different in the two samples. Closer examination of the two earnings distributions shows clearly that the distribution of reported annual earnings among non-FTFY workers in the CPS is both strongly downshifted and skewed more to the left than in the NLSY79. CPS respondents who do not work full time and year round not only report lower earnings, on average, but also the bottom tail of their distribution reaches much farther down the earnings scale. These differences already are pronounced in 1979, and they grow over time, thus contributing directly to the growing discrepancy between the two samples.

For both groups of workers, annual earnings reports are higher in the NLSY79 than in the CPS by about 20 percent at the median. This begins to suggest that the primary source of the discrepancy may be underreporting in the CPS. The most likely explanation is differences in the respective questionnaires, because neither sample bias nor attrition bias has been suggested as a problem in the NLSY79.[13] As noted in the study by Gottschalk and Moffitt, the design of the NLSY79 questionnaire probably increases the accuracy of earnings reports. The sequence of questions asked about individual jobs in the NLSY79 aids in the recall of both earnings and hours relative to the CPS, and the effect would be expected to be strongest for part-time or part-year workers with irregular schedules and sources of earnings.

In addition, the NLSY79 is administered as a face-to-face interview, whereas the CPS, except for the initial interview, usually is administered by telephone.[14] This probably will raise the validity and reliability of the NLSY79 data relative to the CPS. The longitudinal basis of the NLSY79 provides a continuing relationship between the respondents and the survey organization. The promise of confidentiality has been met over time, and respondents may feel more comfortable disclosing sensitive information on earnings. Also, in the CPS, proxy reports may be a factor. All of this suggests that the discrepancies in non-FTFY annual earnings reports between the CPS and the NLSY79 may be due to underreporting in the CPS.

It is worth reiterating, however, that the regression trend estimates obtained from these samples should be interpreted with care. They were found to be highly sensitive to small changes in sample selection and model specification. The structure of the analytic question, which focuses analysis on the trends within age over time, leads to both relatively small cell sizes for estimating dispersion, and a mismatch between sample structure and the analytic task. To obtain stable estimates of the time trend, one would need relatively long periods of observation within age groups. The cohort scheme of the NLSY79, with its 8-year moving age window over time, only provides a maximum of 8 years during which any respondents are observed at a particular age, and some of the age segments include less than 2 years of observation.[15] Of course, the equivalent CPS sample reflects the same constraints. While the goal of benchmarking the NLSY79 against the CPS is an important one, the NLSY79 sample structure is not ideal for answering the question posed here, and it is not clear that the survey would ever be used in this fashion.

With that caveat, however, the findings described in this article still attest to the validity of the NLSY79 data. Researchers should therefore take advantage of these data to examine the longitudinal questions for which this survey was designed. In general, the National Longitudinal Surveys, with their unique employer identification codes, remain the only longitudinal data set with an accurate measure of job and employer stability—a significant feature, given the many contradictory empirical findings in this field.[16] The age range covered by the survey provides a detailed window into the period when roughly two-thirds of lifetime job changes and wage growth occur.[17] These also are the formative years of labor market experience when long-term relationships with employers are established. The two National Longitudinal Survey cohorts also bracket the growth in earnings inequality that emerged in the 1980s. Together, the cohorts of the National Longitudinal Surveys provide a unique resource for the analysis of these and other important economic and social issues covering the last 30 years. □

Notes

[1] The Panel Study of Income Dynamics (PSID), begun in 1968, is conducted by the Survey Research Center, Institute for Social Research, University of Michigan. The PSID is a longitudinal study of a representative sample of U.S. individuals (men, women, and children) and the family units in which they reside. It emphasizes the dynamic aspects of economic and demographic behavior, but its content is broad, including sociological and psychological measures. As a consequence of low attrition rates and the success of recontact efforts, the sample size has grown dramatically in recent years, from about 7,000 core households in 1990 to almost 8,700 in 1995. As of 1995, the PSID had collected information about more than 50,000 individuals spanning as much as 28 years of their lives. For more information on the PSID, visit their website at **http://www.isr.umich.edu/src/psid/.**

[2] The National Longitudinal Surveys (NLS), sponsored and directed by the Bureau of Labor Statistics, gather detailed information about the labor market experiences and other aspects of the lives of six groups of men and women. Over the years, a variety of other government agencies, such as the National Institute of Child Health and Human Development, the Department

of Defense, and the Department of Education, the Department of Justice, the National Institute on Drug Abuse, and the National School to Work Office, have funded components of the surveys that provided data relevant to their missions. As a result, the surveys include data about a wide range of events such as schooling and career transitions, marriage and fertility, training investments, child-care usage, and drug and alcohol use. The depth and breadth of each survey allow for analysis of an expansive variety of topics such as the transition from school to work, job mobility, youth unemployment, educational attainment and the returns to education, welfare recipiency, the impact of training, and retirement decisions.

The first set of surveys, initiated in 1966, consisted of four cohorts. These four groups are referred to as the "older men," "mature women," "young men," and "young women" cohorts of the NLS, and are known collectively as the "original cohorts." In 1979, a longitudinal study of a cohort of young men and women aged 14 to 22 was begun. This sample of youth was called the National Longitudinal Survey of Youth 1979 (NLSY79). In 1986, the NLSY79 was expanded to include surveys of the children born to women in that cohort, with the new cohort called the NLSY79 Children. In 1997, the NLS program was again expanded with a new cohort of young people aged 12 to 16 as of December 31, 1996. This new cohort is the National Longitudinal Survey of Youth 1997 (NLSY97).

The National Longitudinal Surveys, especially the NLSY79, have exceptional retention rates. As a result, many NLS survey members have been followed for many years, some for decades, allowing researchers to study large panels of men, women, and children over significant segments of their lives. For more information on the National Longitudinal Surveys, see the *NLS Handbook, 1999* (Bureau of Labor Statistics, 1999).

[3] See Peter Gottschalk and Robert A. Moffitt, "Changes in the structure of earnings in three longitudinal data sets," 1997, unpublished.

[4] The Current Population Survey (CPS), which uses a scientifically selected sample of about 50,000 households, is conducted monthly for the Bureau of Labor Statistics by the Bureau of the Census. The CPS provides statistics on the labor force status of the civilian noninstitutional population of the United States, aged 16 years of older. In the CPS, respondents are asked about their activity during the week that includes the 12th day of the month, the so-called reference week. As such, the CPS is a cross-sectional survey of the population, as opposed to a longitudinal survey like the NLS. For more information on the CPS, see *BLS Handbook of Methods*, Bulletin 2490 (Bureau of Labor Statistics, April 1997), pp. 4–14.

[5] See Thomas MaCurdy, Thomas Mroz, and R. Mark Gritz, "An Evaluation of the National Longitudinal Survey of Youth," *Journal of Human Resources*, Spring 1998, pp. 345–436.

[6] To further minimize heterogeneity, this study excludes Hispanics from the samples analyzed. The study by Gottschalk and Moffitt made no such exclusion.

[7] For the regression-eligible sample used here, ESR-type students represent about 15 percent of the respondents in 1979, dropping to 5 percent in 1985 and down to 1 percent by 1988.

[8] See Peter J. Diggle, Kung-Yee Liang, and Scott L. Zeger, *Analysis of Longitudinal Data*, (New York, Oxford University Press), 1994.

[9] See Gottschalk and Moffitt, "Changes in the structure of earnings," p. 7.

[10] *S-PLUS* is an enhanced version of the *S* environment for data analysis. Unix and Windows versions are available from MathSoft, Inc. The programs used for the analysis in this paper are available from the authors.

[11] As in Chart 1, 2-year age groups are used. For FTFY workers, the values average about 180 respondents per cell for the NLSY79 and about 870 respondents per cell for the CPS. For non-FTFY workers, the corresponding values average about 90 and 300, respectively.

[12] For this figure ages within a year are pooled, but the distributions have been compositionally adjusted for the differences in marginal age distributions between the CPS and NLSY79.

[13] See MaCurdy and others, "An Evaluation of the National Longitudinal Survey of Youth."

[14] In the CPS, respondents are part of the survey for 4 consecutive months, then they are out of the survey for the following 8 months, and finally they are back in the survey for 4 more months the following year. The first interviews are supposed to take place in person, at the home of the respondents, although face-to-face interviews are not always possible. In any case, subsequent interviews are conducted by telephone.

[15] Ages 20 to 29 provide 8 years of observation each, other ages in the 16-to-36 year range provide 8 minus the difference to the closer of the two endpoints. In the analysis by Gottschalk and Moffitt, which only included up to survey year 1988, only three ages (20 to 23) would have provided 8 years of observation; all others would have provided fewer years of observation.

[16] See A.D. Bernhardt, M. Handcock, and M. Scott, "Trends in Job Instability and Wages for Young Adult Men," *Journal of Labor Economics, Part 2*, October, 1999, pp. S65–90.

[17] See Kevin Murphy and Finnis Welch, "Empirical Age–Earnings Profiles," *Journal of Labor Economics*, April 1990, pp. 202–29; and Robert Topel and Michael Ward, "Job Mobility and the Careers of Young Men," *Quarterly Journal of Economics*, May 1992, pp. 439–79.

Telecommuting or work invasion?

Telecommuting—using the Internet and other communications technologies to enable significant regular work at sites away from a traditional workplace—remains the wave of the future, according to some observers. An article by *Federal Computer Week* reporters Colleen O'Hara and Natasha Haubold finds that telecommuting among Federal workers has leveled off at about 25,000 workers in 1999, well short of an informal goal of 60,000 telecommuters. O'Hara and Haubold report that such factors as management attitude, data security, and technical support are some of the challenges restraining the growth of these work arrangements in the Federal sector.

A Stanford University study, *Internet and Society: A Preliminary Report*, of the impact of the Internet also finds little evidence that telecommuting is starting to make strong inroads. Although the principal author, Professor Norman H. Nie, expressed some surprise at the degree to which survey respondents reported using the Internet at home to do work for an employer, the report found that only a small number (4 percent) had reduced hours at a regular worksite while increasing hours worked at home. In fact, according to the study, "more than a quarter of full- or part-time workers who use the Internet more than 5 hours a week said that the Internet has increased the amount of time working at home without decreasing the amount of time working in the office."

Some of the language used in the Stanford report was also indicative of other attitudinal challenges telecommuters might face. The chart of the work data is labeled "Chart 8: Work invades home and increases at the office," and the text of an accompanying press release echoes the theme. After admitting the possibility that the 4 percent of Internet users who have cut back on hours at the office may be the start of telecommuting, Nie is quoted as saying: "On the other hand, we all know from our cell phones and laptops that work appears to be intruding into every other aspect of our lives, and that's one of the clearest trends in these data."

Computer-aided instruction

A witticism attributed to Robert Solow holds that, "We can see the computer age everywhere but in the productivity statistics." There is widespread agreement that this paradox is a measurement problem—official price and output data are simply missing the computer revolution.

Every now and then, however, a shadow of doubt appears. Are computers truly an unalloyed boon for productivity? One recent example takes the form of a study, *New Evidence on Classroom Computers and Pupil Learning*, a NBER working paper by Joshua Angrist and Victor Lavy.

Their paper analyzes the impact of Israel's "Tomorrow-98" program, an ambitious effort to upgrade the computer resources available to elementary and middle schools in that nation. If one accepts average pupil test scores as a measure of output, then the authors' findings that there is "a consistently negative relationship between the program-induced use of computers and fourth-grade math scores" and "[f]or other grades and subjects, the estimates are not significant, though also mostly negative," are troublesome. Perhaps, the computer revolution is having a beneficial effect everywhere but in the productivity statistics and the productivity of the classroom.

This study, of course, is not, and does not purport to be, a complete productivity analysis. For one thing, there is little information on inputs to be matched with the data on educational outcomes. But Angrist and Lavy conclude by questioning whether those inputs appear to be justified by performance.

Workplace practices and the New Economy

Much of the discussion of a "New Economy" focuses on information technology—hardware, software, capital expenditures, and so forth. Sandra E. Black and Lisa M. Lynch's recent NBER working paper, *What's Driving the New Economy: The Benefits of Workplace Innovation*, picks up the parallel argument which some analysts have made that some part of the renaissance in productivity is attributable to "increased managerial focus on quality management, continuous innovation, incentive-based compensation, and employee involvement programs."

Using data from the 1993 and 1996 waves of the Educational Quality of the Workforce National Employers Survey (EQW-NES), Black and Lynch found considerable change in such workplace practice over the 3-year period. Nearly a third of firms in the survey changed in their deployment of benchmarking, number of management levels, and share of workers in self-managed teams or other regular councils. Black and Lynch found that the diffusion of technology, as measured by change in the proportion of nonmanagers using computers, is positively related to productivity. The authors also concluded that workplace practices matter: "[F]irms that re-engineer their workplace to incorporate more high performance practices experience higher productivity growth. Profitsharing and/or stock options are also associated with higher productivity growth, although it is not always statistically significant in all specifications. ... Finally, employee voice (as proxied by the percentage of workers meeting regularly to discuss workplace issues) does appear to contribute to labor productivity." □

We are interested in your feedback on this column. Write to: Executive Editor, *Monthly Labor Review*, Bureau of Labor Statistics, Washington, DC 20212, or e-mail MLR@bls.gov

Lessons from the Depression

The Economics of the Great Depression. Edited by Mark Wheeler. Kalamazoo, MI, W.E. Upjohn Institute for Employment Research, 1998, 211 pp.

What do people know about the causes of the Great Depression? We certainly know that the era altered the lives of everyone who experienced it, but it is difficult to recognize how bad those times were in comparison to more recent periods. Certainly unemployment was high and there were dramatic efforts to improve the economy in the 1930s, but what policy lessons can be learned to help us avoid or recover from such tremendous economic shocks in the future? Politicians, economists, and writers have studied these issues for decades, but what insights do modern economists have to share on the topic?

The Economics of the Great Depression is a collection of academic papers discussing what happened and what we can learn from the Great Depression. The six authors provide a mix of approaches and views into the causes of the event, and their differing interpretations of data, events, and policies reflect a wide range of economic thinking. Some of the essays are historically oriented—-what happened and what was thought at the time; others relate to the present situation—-what actions were taken and what policy lessons are useful for today. The authors used investment analyses, econometric methods, and review of public microdata records to address the subject. The arguments offered are concise and thought provoking, although they are couched in the technical jargon of the economist.

As might be expected, there was a range of analytical approaches to the issue. One historical study looked at characteristics of the unemployment and those who were unemployed during the Great Depression. Unemployment episodes during the Depression were much longer than previously and many episodes lasted for more than a year. As well, those who were unemployed for these long periods tended to be either younger workers or older workers, and workers with fewer skills and less education. Another essay noted that the severity of the Depression varied by industry and region in the United States, and even among countries. Although aggregate output and employment declined, there were increases in both output and employment for some consumer industries. Further, the Depression was less severe in Southern States than in some other parts of the country such as in the Northwest and the Central States. As well, the decrease in international trade forced many less-developed countries to shift emphasis away from raw-material exports and toward industrialization for internal consumption. Thus, the Great Depression affected different areas in different ways.

Some of the papers examined the root causes of the Great Depression. One economist analyzed a number of theories that sought to explain the length and severity of the Depression, such as collapse of the financial markets, government and Federal Reserve policies, and economic maturation. Another used econometric modeling to test a number of possible causes, although it determined no dominant explanation. A study by David C. Wheelock examined the impact of policies developed during the Great Depression on more recent actions of the Federal Reserve. He specifically cited the impact of 1930s changes to currency requirements that led to a Federal Reserve bias toward inflationary monetary policies in the 1960s and 1970s.

Economist Stephen Cecchetti proposed that deflation, itself a result of the significant economic downturn, explained several other behaviors and effects of the Great Depression. Deflation decreased the value of real goods and especially hurt those who were heavily invested in such goods, including factory owners, landowners (such as farmers) and lenders (such as banks). It also led to a desire to maintain assets in cash, leading to bank runs and cash hoarding. Cecchetti suggested a key lesson from the Great Depression is that deflation leads to such catastropic consequences that policymakers should avoid it at all costs.

It is no surprise that there was no firm agreement as to the reasons for the Great Depression among these six economists. Further, because of the technical language, this book is no casual read. Nonetheless, it increases the economic understanding of the Great Depression and its causes. It rigorously examines various explanations for the Depression, shows weaknesses in the simple answers often given for it, and provides some policy lessons for the future. Thus, it is a worthwhile addition to the vast literature concerning the Great Depression.

—Stanley W. Suchman

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Income inequality

Income Inequality in America: An Analysis of Trends. By Paul Ryscavage. Armonk, NY, M.E. Sharpe, Inc., 1998, 229 pp. $56.95, hardcover; $22.95, paperback.

With the U.S. economy approaching the longest uninterrupted expansion on record, unemployment and inflation at their lowest levels in decades, and real earnings growing after years of stagnation, it may seem an odd time to write a book about income inequality in America. Yet, despite rosy economic conditions overall, not all Americans are riding the current wave of economic prosperity. Millions remain in poverty. Constant restructuring in the U.S.

economy has displaced many workers from "middle class" jobs once considered secure, and some workers must settle for contingent jobs, which by definition may not be there for them tomorrow.

Against this setting, Paul Ryscavage (who formerly worked for both the Bureau of Labor Statistics and the Bureau of the Census) has written *Income Inequality in America*. It is accurately billed as a primer on income inequality. The book is well-written, readily understandable, and comprehensive. It provides an overview of the data, tools, and techniques used to gauge income inequality and a thorough assessment of income inequality trends in the United States. The book includes a discussion of some of the latest thinking on the underlying causes behind the growing earnings and income inequality of recent decades, and also compares the U.S. experience with that of other industrialized nations.

Ryscavage recognizes at the very outset of his book that the topic is "provocative." The subject provokes controversy among economists because even though there is a general consensus that the distribution of income in America has become more polarized in recent decades, there is comparatively little agreement on the answers to questions that naturally follow. How much has income inequality grown? Is it still growing? What are the underlying causes? If growing income inequality is a bad thing, as is widely assumed, what are the policy prescriptions that can reverse the trend? In his book, Ryscavage sifts through the data and the literature to provide some answers to the first three questions, but deliberately steers clear of the much more politically-charged debate over the merits and limitations of various policies designed to address growing income inequality.

The subject is also provocative, if not overtly so, for many "main street" Americans—persons who have not studied the issue but have nevertheless sensed that something is happening to the distribution of income in the country. They see it when the local shoe factory closes or when the bulldozers turn the family farm down the road into an expensive housing development. Their perception is fueled further by news stories recounting the enormous pay packages awarded to business executives and professional sport figures, juxtaposed with daily announcements of mass layoffs. Unfortunately, laypersons attempting to square their perceptions of income inequality—commonly thought of in terms of the declining middle class—with actual facts and figures may be discouraged by complicated and sometimes contradictory stories on the topic. Getting a fix on the "truth" is made even more difficult by the polemical tone that pervades much of the discussion.

Income Inequality in America does a good job of summarizing what is known, as well as what is not known, about income inequality. Perhaps most importantly, the information is presented in an apolitical, unbiased manner. Although the subject matter is technical by nature, persons with a nontechnical background also can learn from this book. It is a good resource for anyone interested in studying the issue.

—Steven Haugen

Office of Employment
and Unemployment Statistics
Bureau of Labor Statistics

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This section of the *Review* presents the principal statistical series collected and calculated by the Bureau of Labor Statistics: series on labor force; employment; unemployment; labor compensation; consumer, producer, and international prices; productivity; international comparisons; and injury and illness statistics. In the notes that follow, the data in each group of tables are briefly described; key definitions are given; notes on the data are set forth; and sources of additional information are cited.

General notes

The following notes apply to several tables in this section:

Seasonal adjustment. Certain monthly and quarterly data are adjusted to eliminate the effect on the data of such factors as climatic conditions, industry production schedules, opening and closing of schools, holiday buying periods, and vacation practices, which might prevent short-term evaluation of the statistical series. Tables containing data that have been adjusted are identified as "seasonally adjusted." (All other data are not seasonally adjusted.) Seasonal effects are estimated on the basis of past experience. When new seasonal factors are computed each year, revisions may affect seasonally adjusted data for several preceding years.

Seasonally adjusted data appear in tables 1–14, 16–17, 39, and 43. Seasonally adjusted labor force data in tables 1 and 4–9 were revised in the February 1999 issue of the *Review*. Seasonally adjusted establishment survey data shown in tables 1, 12–14 and 16–17 were revised in the July 1998 *Review* and reflect the experience through March 1998. A brief explanation of the seasonal adjustment methodology appears in "Notes on the data."

Revisions in the productivity data in table 45 are usually introduced in the September issue. Seasonally adjusted indexes and percent changes from month-to-month and quarter-to-quarter are published for numerous Consumer and Producer Price Index series. However, seasonally adjusted indexes are not published for the U.S. average All-Items CPI. Only seasonally adjusted percent changes are available for this series.

Adjustments for price changes. Some data—such as the "real" earnings shown in table 14—are adjusted to eliminate the effect of changes in price. These adjustments are made by dividing current-dollar values by the Consumer Price Index or the appropriate component of the index, then multiplying by 100. For example, given a current hourly wage rate of $3 and a current price index number of 150, where 1982 = 100, the hourly rate expressed in 1982 dollars is $2 ($3/150 x 100 = $2). The $2 (or any other resulting values) are described as "real," "constant," or "1982" dollars.

Sources of information

Data that supplement the tables in this section are published by the Bureau in a variety of sources. Definitions of each series and notes on the data are contained in later sections of these Notes describing each set of data. For detailed descriptions of each data series, see *BLS Handbook of Methods*, Bulletin 2490. Users also may wish to consult *Major Programs of the Bureau of Labor Statistics*, Report 919. News releases provide the latest statistical information published by the Bureau; the major recurring releases are published according to the schedule appearing on the back cover of this issue.

More information about labor force, employment, and unemployment data and the household and establishment surveys underlying the data are available in the Bureau's monthly publication, *Employment and Earnings*. Historical unadjusted and seasonally adjusted data from the household survey are available on the Internet:

http://stats.bls.gov/cpshome.htm

Historically comparable unadjusted and seasonally adjusted data from the establishment survey also are available on the Internet:

http://stats.bls.gov/ceshome.htm

Additional information on labor force data for areas below the national level are provided in the BLS annual report, *Geographic Profile of Employment and Unemployment*.

For a comprehensive discussion of the Employment Cost Index, see *Employment Cost Indexes and Levels, 1975–95*, BLS Bulletin 2466. The most recent data from the Employee Benefits Survey appear in the following Bureau of Labor Statistics bulletins: *Employee Benefits in Medium and Large Firms; Employee Benefits in Small Private Establishments;* and *Employee Benefits in State and Local Governments*.

More detailed data on consumer and producer prices are published in the monthly periodicals, *The CPI Detailed Report* and *Producer Price Indexes*. For an overview of the 1998 revision of the CPI, see the December 1996 issue of the *Monthly Labor Review*. Additional data on international prices appear in monthly news releases.

Listings of industries for which productivity indexes are available may be found on the Internet:

http://stats.bls.gov/iprhome.htm

For additional information on international comparisons data, see *International Comparisons of Unemployment*, BLS Bulletin 1979.

Detailed data on the occupational injury and illness series are published in *Occupational Injuries and Illnesses in the United States, by Industry*, a BLS annual bulletin.

Finally, the *Monthly Labor Review* carries analytical articles on annual and longer term developments in labor force, employment, and unemployment; employee compensation and collective bargaining; prices; productivity; international comparisons; and injury and illness data.

Symbols

n.e.c. = not elsewhere classified.
n.e.s. = not elsewhere specified.
p = preliminary. To increase the timeliness of some series, preliminary figures are issued based on representative but incomplete returns.
r = revised. Generally, this revision reflects the availability of later data, but also may reflect other adjustments.

Comparative Indicators

(Tables 1–3)

Comparative indicators tables provide an overview and comparison of major BLS statistical series. Consequently, although many of the included series are available monthly, all measures in these comparative tables are presented quarterly and annually.

Labor market indicators include employment measures from two major surveys and information on rates of change in compensation provided by the Employment Cost Index (ECI) program. The labor force participation rate, the employment-to-population ratio, and unemployment rates for major demographic groups based on the Current Population ("household") Survey are presented, while measures of employment and average weekly hours by major industry sector are given using nonfarm payroll data. The Employment Cost Index (compensation), by major sector and by bargaining status, is chosen from a variety of BLS compensation and wage measures because it provides a comprehensive measure of employer costs for hiring labor, not just outlays for wages, and it is not affected by employment shifts among occupations and industries.

Data on **changes in compensation, prices, and productivity** are presented in table 2.

Measures of rates of change of compensation and wages from the Employment Cost Index program are provided for all civilian nonfarm workers (excluding Federal and household workers) and for all private nonfarm workers. Measures of changes in consumer prices for all urban consumers; producer prices by stage of processing; overall prices by stage of processing; and overall export and import price indexes are given. Measures of productivity (output per hour of all persons) are provided for major sectors.

Alternative measures of wage and compensation rates of change, which reflect the overall trend in labor costs, are summarized in table 3. Differences in concepts and scope, related to the specific purposes of the series, contribute to the variation in changes among the individual measures.

Notes on the data

Definitions of each series and notes on the data are contained in later sections of these notes describing each set of data.

Employment and Unemployment Data

(Tables 1; 4–20)

Household survey data

Description of the series

EMPLOYMENT DATA in this section are obtained from the Current Population Survey, a program of personal interviews conducted monthly by the Bureau of the Census for the Bureau of Labor Statistics. The sample consists of about 50,000 households selected to represent the U.S. population 16 years of age and older. Households are interviewed on a rotating basis, so that three-fourths of the sample is the same for any 2 consecutive months.

Definitions

Employed persons include (1) all those who worked for pay any time during the week which includes the 12th day of the month or who worked unpaid for 15 hours or more in a family-operated enterprise and (2) those who were temporarily absent from their regular jobs because of illness, vacation, industrial dispute, or similar reasons. A person working at more than one job is counted only in the job at which he or she worked the greatest number of hours.

Unemployed persons are those who did not work during the survey week, but were available for work except for temporary illness and had looked for jobs within the preceding 4 weeks. Persons who did not look for work because they were on layoff are also counted among the unemployed. **The unemployment rate** represents the number unemployed as a percent of the civilian labor force.

The **civilian labor force** consists of all employed or unemployed persons in the civilian noninstitutional population. Persons **not in the labor force** are those not classified as employed or unemployed. This group includes discouraged workers, defined as persons who want and are available for a job and who have looked for work sometime in the past 12 months (or since the end of their last job if they held one within the past 12 months), but are not currently looking, because they believe there are no jobs available or there are none for which they would qualify. The **civilian noninstitutional population** comprises all persons 16 years of age and older who are not inmates of penal or mental institutions, sanitariums, or homes for the aged, infirm, or needy. The **civilian labor force participation** rate is the proportion of the civilian noninstitutional population that is in the labor force. The **employment-population ratio** is employment as a percent of the civilian noninstitutional population.

Notes on the data

From time to time, and especially after a decennial census, adjustments are made in the Current Population Survey figures to correct for estimating errors during the intercensal years. These adjustments affect the comparability of historical data. A description of these adjustments and their effect on the various data series appears in the Explanatory Notes of *Employment and Earnings*.

Labor force data in tables 1 and 4–9 are seasonally adjusted. Since January 1980, national labor force data have been seasonally adjusted with a procedure called X-11 ARIMA which was developed at Statistics Canada as an extension of the standard X-11 method previously used by BLS. A detailed description of the procedure appears in the X-11 *ARIMA Seasonal Adjustment Method,* by Estela Bee Dagum (Statistics Canada, Catalogue No. 12-564E, January 1983).

At the beginning of each calendar year, historical seasonally adjusted data usually are revised, and projected seasonal adjustment factors are calculated for use during the January–June period. The historical seasonally adjusted data usually are revised for only the most recent 5 years. In July, new seasonal adjustment factors, which incorporate the experience through June, are produced for the July–December period, but no revisions are made in the historical data.

Revisions in the household survey

Data beginning in 1999 are not strictly comparable with data for 1998 and earlier years because of the introduction of revised population controls. Additional information appears in the February 1999 issue of *Employment and Earnings*.

FOR ADDITIONAL INFORMATION on national household survey data, contact the Division of Labor Force Statistics: (202) 691–6378.

Establishment survey data

Description of the series

EMPLOYMENT, HOURS, AND EARNINGS DATA in this section are compiled from payroll records reported monthly on a voluntary basis to the Bureau of Labor Statistics and its cooperating State agencies by about 390,000 establishments representing all industries except agriculture. Industries are classified in accordance with the 1987 *Standard Industrial Classification (SIC) Manual.* In most industries, the sampling probabilities are based on the size of the establishment; most large establishments are therefore in the sample. (An establishment is not necessarily a firm; it may be a branch plant, for example, or warehouse.) Self-employed persons and others not on a regular civilian payroll are outside the scope of the survey because they are excluded from establishment records. This largely accounts for the difference in employment figures between the household and establishment surveys.

Definitions

An **establishment** is an economic unit which produces goods or services (such as a factory or store) at a single location and is engaged in one type of economic activity.

Employed persons are all persons who received pay (including holiday and sick pay) for any part of the payroll period including the 12th day of the month. Persons holding more than one job (about 5 percent of all persons in the labor force) are counted in each establishment which reports them.

Production workers in manufacturing include working supervisors and nonsupervisory workers closely associated with production operations. Those workers mentioned in tables 11–16 include production workers in manufacturing and mining;

construction workers in construction; and nonsupervisory workers in the following industries: transportation and public utilities; wholesale and retail trade; finance, insurance, and real estate; and services. These groups account for about four-fifths of the total employment on private nonagricultural payrolls.

Earnings are the payments production or nonsupervisory workers receive during the survey period, including premium pay for overtime or late-shift work but excluding irregular bonuses and other special payments. **Real earnings** are earnings adjusted to reflect the effects of changes in consumer prices. The deflator for this series is derived from the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

Hours represent the average weekly hours of production or nonsupervisory workers for which pay was received, and are different from standard or scheduled hours. **Overtime hours** represent the portion of average weekly hours which was in excess of regular hours and for which overtime premiums were paid.

The **Diffusion Index** represents the percent of industries in which employment was rising over the indicated period, plus one-half of the industries with unchanged employment; 50 percent indicates an equal balance between industries with increasing and decreasing employment. In line with Bureau practice, data for the 1-, 3-, and 6-month spans are seasonally adjusted, while those for the 12-month span are unadjusted. Data are centered within the span. Table 17 provides an index on private nonfarm employment based on 356 industries, and a manufacturing index based on 139 industries. These indexes are useful for measuring the dispersion of economic gains or losses and are also economic indicators.

Notes on the data

Establishment survey data are annually adjusted to comprehensive counts of employment (called "benchmarks"). The latest adjustment, which incorporated March 1997 benchmarks, was made with the release of May 1998 data, published in the July 1998 issue of the *Review*. Coincident with the benchmark adjustment, historical seasonally adjusted data were revised to reflect updated seasonal factors and refinement in the seasonal adjustment procedures. Unadjusted data from April 1997 forward and seasonally adjusted data from January 1994 forward are subject to revision in future benchmarks.

Revisions in State data (table 11) occurred with the publication of January 1999 data.

Beginning in June 1996, the BLS uses the X-12 ARIMA methodology to seasonally adjust establishment survey data. This procedure, developed by the Bureau of the Census, controls for the effect of varying survey intervals (also known as the 4- versus 5-week effect), thereby providing improved measurement of over-the-month changes and underlying economic trends. Revisions of data, usually for the most recent 5-year period, are made once a year coincident with the benchmark revisions.

In the establishment survey, estimates for the most recent 2 months are based on incomplete returns and are published as preliminary in the tables (12–17 in the *Review*). When all returns have been received, the estimates are revised and published as "final" (prior to any benchmark revisions) in the third month of their appearance. Thus, December data are published as preliminary in January and February and as final in March. For the same reasons, quarterly establishment data (table 1) are preliminary for the first 2 months of publication and final in the third month. Thus, fourth-quarter data are published as preliminary in January and February and as final in March.

A comprehensive discussion of the differences between household and establishment data on employment appears in Gloria P. Green, "Comparing employment estimates from household and payroll surveys," *Monthly Labor Review*, December 1969, pp. 9–20.

FOR ADDITIONAL INFORMATION on establishment survey data, contact the Division of Monthly Industry Employment Statistics: (202) 691–6555.

Unemployment data by State

Description of the series

Data presented in this section are obtained from the Local Area Unemployment Statistics (LAUS) program, which is conducted in cooperation with State employment security agencies.

Monthly estimates of the labor force, employment, and unemployment for States and sub-State areas are a key indicator of local economic conditions, and form the basis for determining the eligibility of an area for benefits under Federal economic assistance programs such as the Job Training Partnership Act. Seasonally adjusted unemployment rates are presented in table 10. Insofar as possible, the concepts and definitions underlying these data are those used in the national estimates obtained from the CPS.

Notes on the data

Data refer to State of residence. Monthly data for all States and the District of Columbia are derived using standardized procedures established by BLS. Once a year, estimates are revised to new population controls, usually with publication of January estimates, and benchmarked to annual average CPS levels.

FOR ADDITIONAL INFORMATION on data in this series, call (202) 691–6392 (table 10) or (202) 691–6559 (table 11).

Compensation and Wage Data

(Tables 1–3; 21–27)

COMPENSATION AND WAGE DATA are gathered by the Bureau from business establishments, State and local governments, labor unions, collective bargaining agreements on file with the Bureau, and secondary sources.

Employment Cost Index

Description of the series

The **Employment Cost Index** (ECI) is a quarterly measure of the rate of change in compensation per hour worked and includes wages, salaries, and employer costs of employee benefits. It uses a fixed market basket of labor—similar in concept to the Consumer Price Index's fixed market basket of goods and services—to measure change over time in employer costs of employing labor.

Statistical series on total compensation costs, on wages and salaries, and on benefit costs are available for private nonfarm workers excluding proprietors, the self-employed, and household workers. The total compensation costs and wages and salaries series are also available for State and local government workers and for the civilian nonfarm economy, which consists of private industry and State and local government workers combined. Federal workers are excluded.

The Employment Cost Index probability sample consists of about 4,400 private nonfarm establishments providing about 23,000 occupational observations and 1,000 State and local government establishments providing 6,000 occupational observations selected to represent total employment in each sector. On average, each reporting unit provides wage and compensation information on five well-specified occupations. Data are collected each quarter for the pay period including the 12th day of March, June, September, and December.

Beginning with June 1986 data, fixed employment weights from the 1980 Census of Population are used each quarter to calculate the civilian and private indexes and the index for State and local governments. (Prior to June 1986, the employment weights are from the 1970 Census of Population.) These fixed weights, also used to derive all of the industry and occupation series indexes, ensure that changes in these indexes reflect only changes in compensa-

tion, not employment shifts among industries or occupations with different levels of wages and compensation. For the bargaining status, region, and metropolitan/nonmetropolitan area series, however, employment data by industry and occupation are not available from the census. Instead, the 1980 employment weights are reallocated within these series each quarter based on the current sample. Therefore, these indexes are not strictly comparable to those for the aggregate, industry, and occupation series.

Definitions

Total compensation costs include wages, salaries, and the employer's costs for employee benefits.

Wages and salaries consist of earnings before payroll deductions, including production bonuses, incentive earnings, commissions, and cost-of-living adjustments.

Benefits include the cost to employers for paid leave, supplemental pay (including nonproduction bonuses), insurance, retirement and savings plans, and legally required benefits (such as Social Security, workers' compensation, and unemployment insurance).

Excluded from wages and salaries and employee benefits are such items as payment-in-kind, free room and board, and tips.

Notes on the data

The Employment Cost Index for changes in wages and salaries in the private nonfarm economy was published beginning in 1975. Changes in total compensation cost—wages and salaries and benefits combined—were published beginning in 1980. The series of changes in wages and salaries and for total compensation in the State and local government sector and in the civilian nonfarm economy (excluding Federal employees) were published beginning in 1981. Historical indexes (June 1981=100) are available on the Internet:

http://stats.bls.gov/ecthome.htm

FOR ADDITIONAL INFORMATION on the Employment Cost Index, contact the Office of Compensation Levels and Trends: (202) 691–6199.

Employee Benefits Survey

Description of the series

Employee benefits data are obtained from the Employee Benefits Survey, an annual survey of the incidence and provisions of selected benefits provided by employers. The survey collects data from a sample of approximately 9,000 private sector and State and local government establishments. The data are presented as a percentage of employees who participate in a certain benefit, or as an average benefit provision (for example, the average number of paid holidays provided to employees per year). Selected data from the survey are presented in table 25 for medium and large private establishments and in table 26 for small private establishments and State and local government.

The survey covers paid leave benefits such as holidays and vacations, and personal, funeral, jury duty, military, family, and sick leave; short-term disability, long-term disability, and life insurance; medical, dental, and vision care plans; defined benefit and defined contribution plans; flexible benefits plans; reimbursement accounts; and unpaid family leave.

Also, data are tabulated on the incidence of several other benefits, such as severance pay, child-care assistance, wellness programs, and employee assistance programs.

Definitions

Employer-provided benefits are benefits that are financed either wholly or partly by the employer. They may be sponsored by a union or other third party, as long as there is some employer financing. However, some benefits that are fully paid for by the employee also are included. For example, long-term care insurance and postretirement life insurance paid entirely by the employee are included because the guarantee of insurability and availability at group premium rates are considered a benefit.

Participants are workers who are covered by a benefit, whether or not they use that benefit. If the benefit plan is financed wholly by employers and requires employees to complete a minimum length of service for eligibility, the workers are considered participants whether or not they have met the requirement. If workers are required to contribute towards the cost of a plan, they are considered participants only if they elect the plan and agree to make the required contributions.

Defined benefit pension plans use predetermined formulas to calculate a retirement benefit (if any), and obligate the employer to provide those benefits. Benefits are generally based on salary, years of service, or both.

Defined contribution plans generally specify the level of employer and employee contributions to a plan, but not the formula for determining eventual benefits. Instead, individual accounts are set up for participants, and benefits are based on amounts credited to these accounts.

Tax-deferred savings plans are a type of defined contribution plan that allow participants to contribute a portion of their salary to an employer-sponsored plan and defer income taxes until withdrawal.

Flexible benefit plans allow employees to choose among several benefits, such as life insurance, medical care, and vacation days, and among several levels of coverage within a given benefit.

Notes on the data

Surveys of employees in medium and large establishments conducted over the 1979–86 period included establishments that employed at least 50, 100, or 250 workers, depending on the industry (most service industries were excluded). The survey conducted in 1987 covered only State and local governments with 50 or more employees. The surveys conducted in 1988 and 1989 included medium and large establishments with 100 workers or more in private industries. All surveys conducted over the 1979–89 period excluded establishments in Alaska and Hawaii, as well as part-time employees.

Beginning in 1990, surveys of State and local governments and small private establishments were conducted in even-numbered years, and surveys of medium and large establishments were conducted in odd-numbered years. The small establishment survey includes all private nonfarm establishments with fewer than 100 workers, while the State and local government survey includes all governments, regardless of the number of workers. All three surveys include full- and part-time workers, and workers in all 50 States and the District of Columbia.

FOR ADDITIONAL INFORMATION on the Employee Benefits Survey, contact the Office of Compensation Levels and Trends on the Internet:

http://stats.bls.gov/ebshome.htm

Work stoppages

Description of the series

Data on work stoppages measure the number and duration of major strikes or lockouts (involving 1,000 workers or more) occurring during the month (or year), the number of workers involved, and the amount of work time lost because of stoppage. These data are presented in table 27.

Data are largely from a variety of published sources and cover only establishments directly involved in a stoppage. They do not measure the indirect or secondary effect of stoppages on other establishments whose employees are idle owing to material shortages or lack of service.

Definitions

Number of stoppages: The number of strikes and lockouts involving 1,000 work-

ers or more and lasting a full shift or longer.

Workers involved: The number of workers directly involved in the stoppage.

Number of days idle: The aggregate number of workdays lost by workers involved in the stoppages.

Days of idleness as a percent of estimated working time: Aggregate workdays lost as a percent of the aggregate number of standard workdays in the period multiplied by total employment in the period.

Notes on the data

This series is not comparable with the one terminated in 1981 that covered strikes involving six workers or more.

FOR ADDITIONAL INFORMATION on work stoppages data, contact the Office of Compensation and Working Conditions: (202) 691–6282, or the Internet:

http://stats.bls.gov/cbahome.htm

Price Data

(Tables 2; 28–38)

PRICE DATA are gathered by the Bureau of Labor Statistics from retail and primary markets in the United States. Price indexes are given in relation to a base period—1982 = 100 for many Producer Price Indexes, 1982–84 = 100 for many Consumer Price Indexes (unless otherwise noted), and 1990 = 100 for International Price Indexes.

Consumer Price Indexes

Description of the series

The **Consumer Price Index** (CPI) is a measure of the average change in the prices paid by urban consumers for a fixed market basket of goods and services. The CPI is calculated monthly for two population groups, one consisting only of urban households whose primary source of income is derived from the employment of wage earners and clerical workers, and the other consisting of all urban households. The wage earner index (CPI-W) is a continuation of the historic index that was introduced well over a half-century ago for use in wage negotiations. As new uses were developed for the CPI in recent years, the need for a broader and more representative index became apparent. The all-urban consumer index (CPI-U), introduced in 1978, is representative of the 1993–95 buying habits of about 87 percent of the noninstitutional population of the United States at that time, compared with 32 percent represented in the CPI-W. In addition to wage earners and clerical workers, the CPI-U covers professional, managerial, and technical workers, the self-employed, short-term workers, the unemployed, retirees, and others not in the labor force.

The CPI is based on prices of food, clothing, shelter, fuel, drugs, transportation fares, doctors' and dentists' fees, and other goods and services that people buy for day-to-day living. The quantity and quality of these items are kept essentially unchanged between major revisions so that only price changes will be measured. All taxes directly associated with the purchase and use of items are included in the index.

Data collected from more than 23,000 retail establishments and 5,800 housing units in 87 urban areas across the country are used to develop the "U.S. city average." Separate estimates for 14 major urban centers are presented in table 29. The areas listed are as indicated in footnote 1 to the table. The area indexes measure only the average change in prices for each area since the base period, and do not indicate differences in the level of prices among cities.

Notes on the data

In January 1983, the Bureau changed the way in which homeownership costs are meaured for the CPI-U. A rental equivalence method replaced the asset-price approach to homeownership costs for that series. In January 1985, the same change was made in the CPI-W. The central purpose of the change was to separate shelter costs from the investment component of home-ownership so that the index would reflect only the cost of shelter services provided by owner-occupied homes. An updated CPI-U and CPI-W were introduced with release of the January 1987 and January 1998 data.

FOR ADDITIONAL INFORMATION on consumer prices, contact the Division of Consumer Prices and Price Indexes: (202) 691–7000.

Producer Price Indexes

Description of the series

Producer Price Indexes (PPI) measure average changes in prices received by domestic producers of commodities in all stages of processing. The sample used for calculating these indexes currently contains about 3,200 commodities and about 80,000 quotations per month, selected to represent the movement of prices of all commodities produced in the manufacturing; agriculture, forestry, and fishing; mining; and gas and electricity and public utilities sectors. The stage-of-processing structure of PPI organizes products by class of buyer and degree of fabrication (that is, finished goods, intermediate goods, and crude materials). The traditional commodity structure of PPI organizes products by similarity of end use or material composition. The industry and product structure of PPI organizes data in accordance with the Standard Industrial Classification (SIC) and the product code extension of the SIC developed by the U.S. Bureau of the Census.

To the extent possible, prices used in calculating Producer Price Indexes apply to the first significant commercial transaction in the United States from the production or central marketing point. Price data are generally collected monthly, primarily by mail questionnaire. Most prices are obtained directly from producing companies on a voluntary and confidential basis. Prices generally are reported for the Tuesday of the week containing the 13th day of the month.

Since January 1992, price changes for the various commodities have been averaged together with implicit quantity weights representing their importance in the total net selling value of all commodities as of 1987. The detailed data are aggregated to obtain indexes for stage-of-processing groupings, commodity groupings, durability-of-product groupings, and a number of special composite groups. All Producer Price Index data are subject to revision 4 months after original publication.

FOR ADDITIONAL INFORMATION on producer prices, contact the Division of Industrial Prices and Price Indexes: (202) 691–7705.

International Price Indexes

Description of the series

The **International Price Program** produces monthly and quarterly export and import price indexes for nonmilitary goods traded between the United States and the rest of the world. The export price index provides a measure of price change for all products sold by U.S. residents to foreign buyers. ("Residents" is defined as in the national income accounts; it includes corporations, businesses, and individuals, but does not require the organizations to be U.S. owned nor the individuals to have U.S. citizenship.) The import price index provides a measure of price change for goods purchased from other countries by U.S. residents.

The product universe for both the import and export indexes includes raw materials, agricultural products, semifinished manufactures, and finished manufactures, including both capital and consumer goods. Price data for these items are collected primarily by mail questionnaire. In nearly all cases, the data are collected directly from the exporter or importer, although in a few cases, prices are obtained from other sources.

To the extent possible, the data gathered refer to prices at the U.S. border for exports

and at either the foreign border or the U.S. border for imports. For nearly all products, the prices refer to transactions completed during the first week of the month. Survey respondents are asked to indicate all discounts, allowances, and rebates applicable to the reported prices, so that the price used in the calculation of the indexes is the actual price for which the product was bought or sold.

In addition to general indexes of prices for U.S. exports and imports, indexes are also published for detailed product categories of exports and imports. These categories are defined according to the five-digit level of detail for the Bureau of Economic Analysis End-use Classification (SITC), and the four-digit level of detail for the Harmonized System. Aggregate import indexes by country or region of origin are also available.

BLS publishes indexes for selected categories of internationally traded services, calculated on an international basis and on a balance-of-payments basis.

Notes on the data

The export and import price indexes are weighted indexes of the Laspeyres type. Price relatives are assigned equal importance within each harmonized group and are then aggregated to the higher level. The values assigned to each weight category are based on trade value figures compiled by the Bureau of the Census. The trade weights currently used to compute both indexes relate to 1990.

Because a price index depends on the same items being priced from period to period, it is necessary to recognize when a product's specifications or terms of transaction have been modified. For this reason, the Bureau's questionnaire requests detailed descriptions of the physical and functional characteristics of the products being priced, as well as information on the number of units bought or sold, discounts, credit terms, packaging, class of buyer or seller, and so forth. When there are changes in either the specifications or terms of transaction of a product, the dollar value of each change is deleted from the total price change to obtain the "pure" change. Once this value is determined, a linking procedure is employed which allows for the continued repricing of the item.

For the export price indexes, the preferred pricing is f.a.s. (free alongside ship) U.S. port of exportation. When firms report export prices f.o.b. (free on board), production point information is collected which enables the Bureau to calculate a shipment cost to the port of exportation. An attempt is made to collect two prices for imports. The first is the import price f.o.b. at the foreign port of exportation, which is consistent with the basis for valuation of imports in the national accounts. The second is the import price c.i.f.(costs, insurance, and freight) at the U.S. port of importation, which also includes the other costs associated with bringing the product to the U.S. border. It does not, however, include duty charges. For a given product, only one price basis series is used in the construction of an index.

FOR ADDITIONAL INFORMATION on international prices, contact the Division of International Prices: (202) 691–7155.

Productivity Data

(Tables 2; 39–42)

Business sector and major sectors

Description of the series

The productivity measures relate real output to real input. As such, they encompass a family of measures which include single-factor input measures, such as output per hour, output per unit of labor input, or output per unit of capital input, as well as measures of multifactor productivity (output per unit of combined labor and capital inputs). The Bureau indexes show the change in output relative to changes in the various inputs. The measures cover the business, nonfarm business, manufacturing, and nonfinancial corporate sectors.

Corresponding indexes of hourly compensation, unit labor costs, unit nonlabor payments, and prices are also provided.

Definitions

Output per hour of all persons (labor productivity) is the quantity of goods and services produced per hour of labor input. **Output per unit of capital services** (capital productivity) is the quantity of goods and services produced per unit of capital services input. **Multifactor productivity** is the quantity of goods and services produced per combined inputs. For private business and private nonfarm business, inputs include labor and capital units. For manufacturing, inputs include labor, capital, energy, non-energy materials, and purchased business services.

Compensation per hour is total compensation divided by hours at work. Total compensation equals the wages and salaries of employees plus employers' contributions for social insurance and private benefit plans, plus an estimate of these payments for the self-employed (except for nonfinancial corporations in which there are no self-employed). **Real compensation per hour** is compensation per hour deflated by the change in the Consumer Price Index for All Urban Consumers.

Unit labor costs are the labor compensation costs expended in the production of a unit of output and are derived by dividing compensation by output. **Unit nonlabor payments** include profits, depreciation, interest, and indirect taxes per unit of output. They are computed by subtracting compensation of all persons from current-dollar value of output and dividing by output.

Unit nonlabor costs contain all the components of unit nonlabor payments except unit profits.

Unit profits include corporate profits with inventory valuation and capital consumption adjustments per unit of output.

Hours of all persons are the total hours at work of payroll workers, self-employed persons, and unpaid family workers.

Labor inputs are hours of all persons adjusted for the effects of changes in the education and experience of the labor force.

Capital services are the flow of services from the capital stock used in production. It is developed from measures of the net stock of physical assets—equipment, structures, land, and inventories—weighted by rental prices for each type of asset.

Combined units of labor and capital inputs are derived by combining changes in labor and capital input with weights which represent each component's share of total cost. Combined units of labor, capital, energy, materials, and purchased business services are similarly derived by combining changes in each input with weights that represent each input's share of total costs. The indexes for each input and for combined units are based on changing weights which are averages of the shares in the current and preceding year (the Tornquist index-number formula).

Notes on the data

Business sector output is an annually-weighted index constructed by excluding from real gross domestic product (GDP) the following outputs: general government, nonprofit institutions, paid employees of private households, and the rental value of owner-occupied dwellings. Nonfarm business also excludes farming. Private business and private nonfarm business further exclude government enterprises. The measures are supplied by the U.S. Department of Commerce's Bureau of Economic Analysis. Annual estimates of manufacturing sectoral output are produced by the Bureau of Labor Statistics. Quarterly manufacturing output indexes from the Federal Reserve Board are adjusted to these annual output measures by the BLS. Compensation data are developed from data of the Bureau of Economic Analysis and the Bureau of Labor Statistics. Hours data are developed from data of the Bureau of Labor Statistics.

The productivity and associated cost mea-

sures in tables 39–42 describe the relationship between output in real terms and the labor and capital inputs involved in its production. They show the changes from period to period in the amount of goods and services produced per unit of input.

Although these measures relate output to hours and capital services, they do not measure the contributions of labor, capital, or any other specific factor of production. Rather, they reflect the joint effect of many influences, including changes in technology; shifts in the composition of the labor force; capital investment; level of output; changes in the utilization of capacity, energy, material, and research and development; the organization of production; managerial skill; and characteristics and efforts of the work force.

FOR ADDITIONAL INFORMATION on this productivity series, contact the Division of Productivity Research: (202) 691–5606.

Industry productivity measures

Description of the series

The BLS industry productivity data supplement the measures for the business economy and major sectors with annual measures of labor productivity for selected industries at the three- and four-digit levels of the Standard Industrial Classification system. The industry measures differ in methodology and data sources from the productivity measures for the major sectors because the industry measures are developed independently of the National Income and Product Accounts framework used for the major sector measures.

Definitions

Output per hour is derived by dividing an index of industry output by an index of labor input. For most industries, **output** indexes are derived from data on the value of industry output adjusted for price change. For the remaining industries, output indexes are derived from data on the physical quantity of production.

The **labor input** series consist of the hours of all employees (production and nonproduction workers), the hours of all persons (paid employees, partners, proprietors, and unpaid family workers), or the number of employees, depending upon the industry.

Notes on the data

The industry measures are compiled from data produced by the Bureau of Labor Statistics, the Departments of Commerce, Interior, and Agriculture, the Federal Reserve Board, regulatory agencies, trade associations, and other sources.

For most industries, the productivity indexes refer to the output per hour of all employees. For some transportation industries, only indexes of output per employee are prepared. For some trade and service industries, indexes of output per hour of all persons (including self-employed) are constructed.

FOR ADDITIONAL INFORMATION on this series, contact the Division of Industry Productivity Studies: (202) 691–5618.

International Comparisons

(Tables 43–45)

Labor force and unemployment

Description of the series

Tables 43 and 44 present comparative measures of the labor force, employment, and unemployment—approximating U.S. concepts—for the United States, Canada, Australia, Japan, and several European countries. The unemployment statistics (and, to a lesser extent, employment statistics) published by other industrial countries are not, in most cases, comparable to U.S. unemployment statistics. Therefore, the Bureau adjusts the figures for selected countries, where necessary, for all known major definitional differences. Although precise comparability may not be achieved, these adjusted figures provide a better basis for international comparisons than the figures regularly published by each country.

Definitions

For the principal U.S. definitions of the **labor force**, **employment**, and **unemployment**, see the Notes section on Employment and Unemployment Data: Household survey data.

Notes on the data

The adjusted statistics have been adapted to the age at which compulsory schooling ends in each country, rather than to the U.S. standard of 16 years of age and older. Therefore, the adjusted statistics relate to the population aged 16 and older in France, Sweden, and the United Kingdom; 15 and older in Canada, Australia, Japan, Germany, Italy from 1993 onward, and the Netherlands; and 14 and older in Italy prior to 1993. The institutional population is included in the denominator of the labor force participation rates and employment-population ratios for Japan and Germany; it is excluded for the United States and the other countries.

In the U.S. labor force survey, persons on layoff who are awaiting recall to their jobs are classified as unemployed. European and Japanese layoff practices are quite different in nature from those in the United States; therefore, strict application of the U.S. definition has not been made on this point. For further information, see *Monthly Labor Review*, December 1981, pp. 8–11.

The figures for one or more recent years for France, Germany, Italy, the Netherlands, and the United Kingdom are calculated using adjustment factors based on labor force surveys for earlier years and are considered preliminary. The recent-year measures for these countries, therefore, are subject to revision whenever data from more current labor force surveys become available.

There are breaks in the data series for the United States (1990, 1994, 1997, 1998), France (1992), Italy (1991, 1993), the Netherlands (1988), and Sweden (1987).

For the United States, the break in series reflects a major redesign of the labor force survey questionnaire and collection methodology introduced in January 1994. Revised population estimates based on the 1990 census, adjusted for the estimated undercount, also were incorporated. In 1996, previously published data for the 1990–93 period were revised to reflect the 1990 census-based population controls, adjusted for the undercount. In 1997, revised population controls were introduced into the household survey. Therefore, the data are not strictly conparable with prior years. In 1998, new composite estimation procedures and minor revisions in population controls were introduced into the household survey. Therefore, the data are not strictly comparable with data for 1997 and earlier years. See the Notes section on Employment and Unemployment Data of this *Review*.

For France, the 1992 break reflects the substitution of standardized European Union Statistical Office (EUROSTAT) unemployment statistics for the unemployment data estimated according to the International Labor Office (ILO) definition and published in the Organization for Economic Cooperation and Development (OECD) annual yearbook and quarterly update. This change was made because the EUROSTAT data are more up-to-date than the OECD figures. Also, since 1992, the EUROSTAT definitions are closer to the U.S. definitions than they were in prior years. The impact of this revision was to lower the unemployment rate by 0.1 percentage point in 1992 and 1993, by 0.4 percentage point in 1994, and 0.5 percentage point in 1995.

For Italy, the 1991 break reflects a revision in the method of weighting sample data. The impact was to increase the unemployment rate by approximately 0.3 percentage point, from 6.6 to 6.9 percent in 1991.

In October 1992, the survey methodology was revised and the definition of unemployment was changed to include only those who were actively looking for a job within the 30 days preceding the survey and who were available for work. In addition, the lower age limit for the labor force was raised from 14 to 15 years. (Prior to these changes, BLS adjusted Italy's published unemployment rate downward by excluding from the unemployed those persons who had not actively sought work in the past 30 days.) The break in the series also reflects the incorporation of the 1991 population census results. The impact of these changes was to raise Italy's adjusted unemployment rate by approximately 1.2 percentage points, from 8.3 to 9.5 percent in fourth-quarter 1992. These changes did not affect employment significantly, except in 1993. Estimates by the Italian Statistical Office indicate that employment declined by about 3 percent in 1993, rather than the nearly 4 percent indicated by the data shown in table 44. This difference is attributable mainly to the incorporation of the 1991 population benchmarks in the 1993 data. Data for earlier years have not been adjusted to incorporate the 1991 census results.

For the Netherlands, a new survey questionnaire was introduced in 1992 that allowed for a closer application of ILO guidelines. EUROSTAT has revised the Dutch series back to 1988 based on the 1992 changes. The 1988 revised unemployment rate is 7.6 percent; the previous estimate for the same year was 9.3 percent.

There have been two breaks in series in the Swedish labor force survey, in 1987 and 1993. Adjustments have been made for the 1993 break back to 1987. In 1987, a new questionnaire was introduced. Questions regarding current availability were added and the period of active workseeking was reduced from 60 days to 4 weeks. These changes lowered Sweden's 1987 unemployment rate by 0.4 percentage point, from 2.3 to 1.9 percent. In 1993, the measurement period for the labor force survey was changed to represent all 52 weeks of the year rather than one week each month and a new adjustment for population totals was introduced. The impact was to raise the unemployment rate by approximately 0.5 percentage point, from 7.6 to 8.1 percent. Statistics Sweden revised its labor force survey data for 1987–92 to take into account the break in 1993. The adjustment raised the Swedish unemployment rate by 0.2 percentage point in 1987 and gradually rose to 0.5 percentage point in 1992.

Beginning with 1987, BLS has adjusted the Swedish data to classify students who also sought work as unemployed. The impact of this change was to increase the adjusted unemployment rate by 0.1 percentage point in 1987 and by 1.8 percentage points in 1994, when unemployment was higher. In 1998, the adjusted unemployment rate had risen from 6.5 to 8.4 percent due to the adjustment to include students.

The net effect of the 1987 and 1993 changes and the BLS adjustment for students seeking work lowered Sweden's 1987 unemployment rate from 2.3 to 2.2 percent.

FOR ADDITIONAL INFORMATION on this series, contact the Division of Foreign Labor Statistics: (202) 691–5654.

Manufacturing productivity and labor costs

Description of the series

Table 45 presents comparative indexes of manufacturing labor productivity (output per hour), output, total hours, compensation per hour, and unit labor costs for the United States, Canada, Japan, and nine European countries. These measures are trend comparisons—that is, series that measure changes over time—rather than level comparisons. There are greater technical problems in comparing the levels of manufacturing output among countries.

BLS constructs the comparative indexes from three basic aggregate measures—output, total labor hours, and total compensation. The hours and compensation measures refer to all employed persons (wage and salary earners plus self-employed persons and unpaid family workers) in the United States, Canada, Japan, France, Germany, Norway, and Sweden, and to all employees (wage and salary earners) in the other countries.

Definitions

Output, in general, refers to value added in manufacturing from the national accounts of each country. However, the output series for Japan prior to 1970 is an index of industrial production, and the national accounts measures for the United Kingdom are essentially identical to their indexes of industrial production.

The 1977–97 output data for the United States are the gross product originating (value added) measures prepared by the Bureau of Economic Analysis of the U.S. Department of Commerce. Comparable manufacturing output data currently are not available prior to 1977.

U.S. gross product originating is a chain-type annual-weighted series. (For more information on the U.S. measure, see Robert E. Yuskavage, "Improved Estimates of Gross Product by Industry, 1959–94," *Survey of Current Business*, August 1996, pp. 133–55.) The Japanese value added series is based upon one set of fixed price weights for the years 1970 through 1997. Output series for the other foreign economies also employ fixed price weights, but the weights are updated periodically (for example, every 5 or 10 years).

To preserve the comparability of the U.S. measures with those for other economies, BLS uses gross product originating in manufacturing for the United States for these comparative measures. The gross product originating series differs from the manufacturing output series that BLS publishes in its news releases on quarterly measures of U.S. productivity and costs (and that underlies the measures that appear in tables 39 and 41 in this section). The quarterly measures are on a "sectoral output" basis, rather than a value-added basis. Sectoral output is gross output less intrasector transactions.

Total labor hours refers to hours worked in all countries. The measures are developed from statistics of manufacturing employment and average hours. The series used for France (from 1970 forward), Norway, and Sweden are official series published with the national accounts. Where official total hours series are not available, the measures are developed by BLS using employment figures published with the national accounts, or other comprehensive employment series, and estimates of annual hours worked. For Germany, BLS uses estimates of average hours worked developed by a research institute connected to the Ministry of Labor for use with the national accounts employment figures. For the other countries, BLS constructs its own estimates of average hours.

Denmark has not published estimates of average hours for 1994–97; therefore, the BLS measure of labor input for Denmark ends in 1993.

Total compensation (labor cost) includes all payments in cash or in-kind made directly to employees plus employer expenditures for legally required insurance programs and contractual and private benefit plans. The measures are from the national accounts of each country, except those for Belgium, which are developed by BLS using statistics on employment, average hours, and hourly compensation. For Canada, France, and Sweden, compensation is increased to account for other significant taxes on payroll or employment. For the United Kingdom, compensation is reduced between 1967 and 1991 to account for employment-related subsidies. Self-employed workers are included in the all-employed-persons measures by assuming that their hourly compensation is equal to the average for wage and salary employees.

Notes on the data

In general, the measures relate to total manufacturing as defined by the International Stan-

dard Industrial Classification. However, the measures for France (for all years) and Italy (beginning 1970) refer to mining and manufacturing less energy-related products, and the measures for Denmark include mining and exclude manufacturing handicrafts from 1960 to 1966.

The measures for recent years may be based on current indicators of manufacturing output (such as industrial production indexes), employment, average hours, and hourly compensation until national accounts and other statistics used for the long-term measures become available.

FOR ADDITIONAL INFORMATION on this series, contact the Division of Foreign Labor Statistics.

Occupational Injury and Illness Data

(Tables 46–47)

Survey of Occupational Injuries and Illnesses

Description of the series

The Survey of Occupational Injuries and Illnesses collects data from employers about their workers' job-related nonfatal injuries and illnesses. The information that employers provide is based on records that they maintain under the Occupational Safety and Health Act of 1970. Self-employed individuals, farms with fewer than 11 employees, employers regulated by other Federal safety and health laws, and Federal, State, and local government agencies are excluded from the survey.

The survey is a Federal-State cooperative program with an independent sample selected for each participating State. A stratified random sample with a Neyman allocation is selected to represent all private industries in the State. The survey is stratified by Standard Industrial Classification and size of employment.

Definitions

Under the Occupational Safety and Health Act, employers maintain records of nonfatal work-related injuries and illnesses that involve one or more of the following: loss of consciousness, restriction of work or motion, transfer to another job, or medical treatment other than first aid.

Occupational injury is any injury such as a cut, fracture, sprain, or amputation that results from a work-related event or a single, instantaneous exposure in the work environment.

Occupational illness is an abnormal condition or disorder, other than one resulting from an occupational injury, caused by exposure to factors associated with employment. It includes acute and chronic illnesses or disease which may be caused by inhalation, absorption, ingestion, or direct contact.

Lost workday injuries and illnesses are cases that involve days away from work, or days of restricted work activity, or both.

Lost workdays include the number of workdays (consecutive or not) on which the employee was either away from work or at work in some restricted capacity, or both, because of an occupational injury or illness. BLS measures of the number and incidence rate of lost workdays were discontinued beginning with the 1993 survey. The number of days away from work or days of restricted work activity does not include the day of injury or onset of illness or any days on which the employee would not have worked, such as a Federal holiday, even though able to work.

Incidence rates are computed as the number of injuries and/or illnesses or lost work days per 100 full-time workers.

Notes on the data

The definitions of occupational injuries and illnesses are from *Recordkeeping Guidelines for Occupational Injuries and Illnesses* (U.S. Department of Labor, Bureau of Labor Statistics, September 1986).

Estimates are made for industries and employment size classes for total recordable cases, lost workday cases, days away from work cases, and nonfatal cases without lost workdays. These data also are shown separately for injuries. Illness data are available for seven categories: occupational skin diseases or disorders, dust diseases of the lungs, respiratory conditions due to toxic agents, poisoning (systemic effects of toxic agents), disorders due to physical agents (other than toxic materials), disorders associated with repeated trauma, and all other occupational illnesses.

The survey continues to measure the number of new work-related illness cases which are recognized, diagnosed, and reported during the year. Some conditions, for example, long-term latent illnesses caused by exposure to carcinogens, often are difficult to relate to the workplace and are not adequately recognized and reported. These long-term latent illnesses are believed to be understated in the survey's illness measure. In contrast, the overwhelming majority of the reported new illnesses are those which are easier to directly relate to workplace activity (for example, contact dermatitis and carpal tunnel syndrome).

Most of the estimates are in the form of incidence rates, defined as the number of injuries and illnesses per 100 equivalent full-time workers. For this purpose, 200,000 employee hours represent 100 employee years (2,000 hours per employee). Full detail on the available measures is presented in the annual bulletin, *Occupational Injuries and Illnesses: Counts, Rates, and Characteristics.*

Comparable data for more than 40 States and territories are available from the BLS Office of Safety, Health and Working Conditions. Many of these States publish data on State and local government employees in addition to private industry data.

Mining and railroad data are furnished to BLS by the Mine Safety and Health Administration and the Federal Railroad Administration. Data from these organizations are included in both the national and State data published annually.

With the 1992 survey, BLS began publishing details on serious, nonfatal incidents resulting in days away from work. Included are some major characteristics of the injured and ill workers, such as occupation, age, gender, race, and length of service, as well as the circumstances of their injuries and illnesses (nature of the disabling condition, part of body affected, event and exposure, and the source directly producing the condition). In general, these data are available nationwide for detailed industries and for individual States at more aggregated industry levels.

FOR ADDITIONAL INFORMATION on occupational injuries and illnesses, contact the Office of Occupational Safety, Health and Working Conditions at (202) 691–6180, or access the Internet at:

http://www.bls.gov/oshhome.htm

Census of Fatal Occupational Injuries

The Census of Fatal Occupational Injuries compiles a complete roster of fatal job-related injuries, including detailed data about the fatally injured workers and the fatal events. The program collects and cross checks fatality information from multiple sources, including death certificates, State and Federal workers' compensation reports, Occupational Safety and Health Administration and Mine Safety and Health Administration records, medical examiner and autopsy reports, media accounts, State motor vehicle fatality records, and follow-up questionnaires to employers.

In addition to private wage and salary workers, the self-employed, family members, and Federal, State, and local government workers are covered by the program. To be included in the fatality census, the decedent must have been employed (that is working for pay, compensation, or profit) at the time of the event, engaged in a legal work activity, or present at the site of the incident as a requirement of his or her job.

Definition

A fatal work injury is any intentional or unintentional wound or damage to the body resulting in death from acute exposure to energy, such as heat or electricity, or kinetic energy from a crash, or from the absence of such essentials as heat or oxygen caused by a specific event or incident or series of events within a single workday or shift. Fatalities that occur during a person's commute to or from work are excluded from the census, as well as work-related illnesses, which can be difficult to identify due to long latency periods.

Notes on the data

Twenty-eight data elements are collected, coded, and tabulated in the fatality program, including information about the fatally injured worker, the fatal incident, and the machinery or equipment involved. Summary worker demographic data and event characteristics are included in a national news release that is available about 8 months after the end of the reference year. The Census of Fatal Occupational Injuries was initiated in 1992 as a joint Federal-State effort. Most States issue summary information at the time of the national news release.

FOR ADDITIONAL INFORMATION on the Census of Fatal Occupational Injuries contact the BLS Office of Safety, Health, and Working Conditions at (202) 691–6175, or the Internet at:

http://www.bls.gov/oshhome.htm

Bureau of Labor Statistics Internet

The Bureau of Labor Statistics World Wide Web site on the Internet contains a range of data on consumer and producer prices, employment and unemployment, occupational compensation, employee benefits, workplace injuries and illnesses, and productivity. The homepage can be accessed using any Web browser:

http://stats.bls.gov.

Also, some data can be accessed through anonymous FTP or Gopher at

stats.bls.gov

1. Labor market indicators

Selected indicators	1998	1999	1997	1998				1999			
			IV	I	II	III	IV	I	II	III	IV
Employment data											
Employment status of the civilian noninstitutionalized population (household survey):[1]											
Labor force participation rate	67.1	67.1	67.1	67.2	67.0	67.0	67.1	67.2	67.1	67.0	67.0
Employment-population ratio	64.1	64.3	63.9	64.0	64.1	64.0	64.1	64.3	64.2	64.2	64.3
Unemployment rate	4.5	4.2	4.7	4.7	4.4	4.5	4.4	4.3	4.3	4.2	4.1
Men	4.4	4.1	4.7	4.6	4.3	4.5	4.3	4.2	4.2	4.1	4.0
16 to 24 years	11.1	10.3	11.5	11.4	10.7	11.5	10.6	10.4	10.4	10.0	10.4
25 years and over	3.2	3.0	3.4	3.3	3.1	3.2	3.1	3.0	3.0	3.0	2.9
Women	4.6	4.3	4.7	4.8	4.6	4.5	4.6	4.4	4.4	4.4	4.2
16 to 24 years	9.8	9.5	10.1	10.0	9.7	9.9	9.4	9.8	9.2	9.5	9.4
25 years and over	3.6	3.3	3.6	3.8	3.6	3.5	3.6	3.4	3.4	3.3	3.1
Employment, nonfarm (payroll data), in thousands:[1]											
Total	125,826	128,616	123,946	124,771	125,462	126,113	126,865	127,640	128,246	128,936	129,609
Private sector	106,007	108,455	104,311	105,094	105,707	106,260	106,920	107,596	108,153	108,743	109,333
Goods-producing	25,347	25,240	25,181	25,363	25,393	25,306	25,319	25,310	25,222	25,194	25,243
Manufacturing	18,772	18,431	18,805	18,876	18,851	18,719	18,645	18,542	18,433	18,398	18,357
Service-producing	100,480	103,376	98,765	99,409	100,070	100,807	101,545	102,331	103,024	103,743	104,365
Average hours:											
Private sector	34.6	34.5	34.6	34.7	34.6	34.6	34.6	34.6	34.4	34.5	34.5
Manufacturing	41.7	41.7	42.1	42.0	41.7	41.7	41.7	41.6	41.7	41.8	41.7
Overtime	4.6	4.6	4.9	4.8	4.6	4.5	4.5	4.5	4.5	4.7	4.7
Employment Cost Index[2]											
Percent change in the ECI, compensation:											
All workers (excluding farm, household and Federal workers)	3.4	3.4	.8	.8	.8	1.2	.6	.4	1.0	1.1	.9
Private industry workers	3.5	3.4	.9	.9	.9	1.1	.6	.4	1.1	.9	.9
Goods-producing[3]	2.8	3.4	.4	.7	.8	.7	.5	.8	.7	.9	1.0
Service-producing[3]	3.8	3.4	1.1	1.0	.8	1.3	.6	.3	1.3	.9	.8
State and local government workers	3.0	3.4	.5	.6	.3	1.5	.6	.5	.4	1.5	1.0
Workers by bargaining status (private industry):											
Union	3.0	2.7	.2	.4	1.0	1.1	.5	.4	.7	.9	.7
Nonunion	3.5	3.6	1.0	1.0	.8	1.1	.6	.5	1.2	.9	1.0

[1] Quarterly data seasonally adjusted.

[2] Annual changes are December-to-December changes. Quarterly changes are calculated using the last month of each quarter.

[3] Goods-producing industries include mining, construction, and manufacturing. Service-producing industries include all other private sector industries.

2. Annual and quarterly percent changes in compensation, prices, and productivity

Selected measures	1998	1999	1997	1998				1999			
			IV	I	II	III	IV	I	II	III	IV
Compensation data[1,2]											
Employment Cost Index—compensation (wages, salaries, benefits):											
Civilian nonfarm	3.4	3.4	0.8	0.8	0.8	1.2	0.6	0.4	1.0	1.1	0.9
Private nonfarm	3.5	3.4	.9	.9	.9	1.1	.6	.4	1.1	.9	.9
Employment Cost Index—wages and salaries:											
Civilian nonfarm	3.7	3.5	.9	.9	.7	1.3	.7	.5	1.0	1.1	.8
Private nonfarm	3.9	3.5	1.0	1.1	.9	1.3	.6	.5	1.2	.9	.9
Price data[1]											
Consumer Price Index (All Urban Consumers): All Items	1.6	2.7	.1	.6	.5	.4	.2	.7	.7	1.0	.2
Producer Price Index:											
Finished goods	.0	3.0	–.5	–.8	.5	–.1	.4	.0	1.2	1.5	.2
Finished consumer goods	.0	3.9	–.8	–1.0	.8	.0	.2	.0	1.8	2.2	–.1
Capital equipment	.0	.3	.5	.0	–.5	–.4	.9	–.1	–.4	–.4	1.2
Intermediate materials, supplies, and components	–3.3	3.9	–.8	–1.4	.2	–.5	–1.6	–.2	1.9	1.9	.2
Crude materials	–16.7	15.7	–.6	–8.8	–1.8	–5.6	–2.5	–.1	9.4	10.2	–3.2
Productivity data[3]											
Output per hour of all persons:											
Business sector	2.8	3.0	1.2	4.6	.6	3.4	4.3	3.0	.8	4.7	4.8
Nonfarm business sector	2.8	2.9	1.2	4.4	.9	3.1	4.1	2.7	.6	5.0	5.0
Nonfinancial corporations[4]	4.0	–	2.8	3.7	3.9	5.9	3.2	4.2	3.3	4.1	–

[1] Annual changes are December-to-December changes. Quarterly changes are calculated using the last month of each quarter. Compensation and price data are not seasonally adjusted, and the price data are not compounded.

[2] Excludes Federal and private household workers.

[3] Annual rates of change are computed by comparing annual averages. Quarterly percent changes reflect annual rates of change in quarterly indexes. The data are seasonally adjusted.

[4] Output per hour of all employees.

NOTE: Dash indicates data not available.

3. Alternative measures of wage and compensation changes

Components	Quarterly average						Four quarters ending—					
	1998		1999				1998		1999			
	III	IV	I	II	III	IV	III	IV	I	II	III	IV
Average hourly compensation:[1]												
All persons, business sector	6.1	4.9	4.9	5.1	4.5	3.6	5.8	5.4	5.4	5.3	4.9	4.5
All persons, nonfarm business sector	6.2	4.6	4.2	4.8	4.7	4.0	5.7	5.3	5.1	4.9	4.6	4.4
Employment Cost Index—compensation:												
Civilian nonfarm[2]	1.2	.6	.4	1.0	1.1	.9	3.7	3.4	3.0	3.2	3.1	3.4
Private nonfarm	1.1	.6	.4	1.1	.9	.9	3.8	3.5	3.0	3.3	3.1	3.4
Union	1.1	.5	.4	.7	.9	.7	2.7	3.0	3.0	2.7	2.5	2.7
Nonunion	1.1	.6	.5	1.2	.9	1.0	4.0	3.5	3.0	3.4	3.2	3.6
State and local governments	1.5	.6	.5	.4	1.5	1.0	3.0	3.0	2.9	3.0	2.9	3.4
Employment Cost Index—wages and salaries:												
Civilian nonfarm[2]	1.3	.7	.5	1.0	1.1	.8	4.0	3.7	3.3	3.6	3.3	3.5
Private nonfarm	1.3	.6	.5	1.2	.9	.9	4.3	3.9	3.3	3.6	3.2	3.5
Union	1.3	.5	.4	.8	.7	.6	3.2	3.3	3.1	3.1	2.5	2.6
Nonunion	1.3	.7	.5	1.2	.9	.9	4.4	4.0	3.3	3.7	3.3	3.6
State and local governments	1.6	.7	.4	.4	1.9	.9	3.0	3.1	2.9	3.1	3.3	3.6

[1] Seasonally adjusted. "Quarterly average" is percent change from a quarter ago, at an annual rate.

[2] Excludes Federal and household workers.

4. Employment status of the population, by sex, age, race, and Hispanic origin, monthly data seasonally adjusted

[Numbers in thousands]

Employment status	Annual average		1999												2000
	1998	1999	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
TOTAL															
Civilian noninstitutional population[1]	205,220	207,753	206,719	206,873	207,036	207,236	207,427	207,632	207,828	208,038	208,265	208,483	208,666	208,832	208,782
Civilian labor force	137,673	139,368	139,232	139,137	138,804	139,086	139,013	139,332	139,336	139,372	139,475	139,697	139,834	140,108	140,910
Participation rate	67.1	67.1	67.4	67.3	67.0	67.1	67.0	67.1	67.0	67.0	67.0	67.0	67.0	67.1	67.5
Employed	131,463	133,488	133,225	133,029	132,976	133,054	133,190	133,398	133,399	133,530	133,650	133,940	134,098	134,420	135,221
Employment-population ratio[2]	64.1	64.3	64.4	64.3	64.2	64.2	64.2	64.2	64.2	64.2	64.2	64.2	64.3	64.4	64.8
Unemployed	6,210	5,880	6,007	6,108	5,828	6,032	5,823	5,934	5,937	5,842	5,825	5,757	5,736	5,688	5,689
Unemployment rate	4.5	4.2	4.3	4.4	4.2	4.3	4.2	4.3	4.3	4.2	4.2	4.1	4.1	4.1	4.0
Not in the labor force	67,547	68,385	67,487	67,736	68,232	68,150	68,414	68,300	68,492	68,666	68,790	68,786	68,832	68,724	67,872
Men, 20 years and over															
Civilian noninstitutional population[1]	90,790	91,555	91,124	91,189	91,215	91,302	91,368	91,487	91,561	91,692	91,793	91,896	91,986	92,052	92,057
Civilian labor force	69,715	70,194	70,202	70,111	69,934	69,992	69,978	70,116	70,167	70,240	70,328	70,339	70,388	70,529	70,917
Participation rate	76.8	76.7	77.0	76.9	76.7	76.7	76.6	76.6	76.6	76.6	76.6	76.5	76.5	76.6	77.0
Employed	67,135	67,761	67,771	67,527	67,628	67,562	67,470	67,645	67,703	67,768	67,943	67,898	68,037	68,197	68,585
Employment-population ratio[2]	73.9	74.0	74.4	74.1	74.1	74.0	73.8	73.9	73.9	73.9	74.0	73.9	74.0	74.1	74.5
Agriculture	2,350	2,244	2,304	2,231	2,239	2,305	2,224	2,246	2,256	2,237	2,189	2,206	2,262	2,227	2,303
Nonagricultural industries	64,785	65,517	65,467	65,296	65,389	65,257	65,246	65,399	65,447	65,531	65,754	65,692	65,775	65,970	66,282
Unemployed	2,580	2,433	2,431	2,584	2,306	2,430	2,508	2,471	2,464	2,472	2,385	2,441	2,351	2,332	2,332
Unemployment rate	3.7	3.5	3.5	3.7	3.3	3.5	3.6	3.5	3.5	3.5	3.4	3.5	3.3	3.3	3.3
Women, 20 years and over															
Civilian noninstitutional population[1]	98,786	100,158	99,686	99,746	99,833	99,923	100,008	100,131	100,203	100,285	100,385	100,458	100,573	100,666	100,579
Civilian labor force	59,702	60,840	60,691	60,591	60,554	60,765	60,708	60,988	60,852	60,904	60,860	60,955	61,052	61,154	61,576
Participation rate	60.4	60.7	60.9	60.7	60.7	60.8	60.7	60.9	60.7	60.7	60.6	60.7	60.7	60.7	61.2
Employed	57,278	58,555	58,373	58,261	58,216	58,336	58,483	58,647	58,477	58,648	58,630	58,800	58,838	58,958	59,280
Employment-population ratio[2]	58.0	58.5	58.6	58.4	58.3	58.4	58.5	58.6	58.4	58.5	58.4	58.5	58.5	58.6	58.9
Agriculture	768	803	802	822	821	803	820	851	798	780	778	800	768	791	826
Nonagricultural industries	56,510	57,752	57,571	57,439	57,395	57,533	57,663	57,796	57,679	57,868	57,852	58,000	58,070	58,167	58,454
Unemployed	2,424	2,285	2,318	2,330	2,338	2,429	2,225	2,341	2,375	2,256	2,230	2,155	2,214	2,196	2,297
Unemployment rate	4.1	3.8	3.8	3.8	3.9	4.0	3.7	3.8	3.9	3.7	3.7	3.5	3.6	3.6	3.7
Both sexes, 16 to 19 years															
Civilian noninstitutional population[1]	15,644	16,040	15,909	15,939	15,988	16,011	16,051	16,014	16,065	16,061	16,086	16,129	16,107	16,114	16,147
Civilian labor force	8,256	8,333	8,339	8,435	8,316	8,329	8,327	8,228	8,317	8,228	8,287	8,403	8,394	8,425	8,416
Participation rate	52.8	52.0	52.4	52.9	52.0	52.0	51.9	51.4	51.8	51.2	51.5	52.1	52.1	52.3	52.1
Employed	7,051	7,172	7,081	7,241	7,132	7,156	7,237	7,106	7,219	7,114	7,077	7,242	7,223	7,265	7,356
Employment-population ratio[2]	45.1	44.7	44.5	45.4	44.6	44.7	45.1	44.4	44.9	44.3	44.0	44.9	44.8	45.1	45.6
Agriculture	261	234	191	275	230	233	246	233	224	217	212	232	280	261	242
Nonagricultural industries	6,790	6,938	6,890	6,966	6,902	6,923	6,991	6,873	6,995	6,897	6,865	7,010	6,943	7,004	7,114
Unemployed	1,205	1,162	1,258	1,194	1,184	1,173	1,090	1,122	1,098	1,114	1,210	1,161	1,171	1,160	1,060
Unemployment rate	14.6	13.9	15.1	14.2	14.2	14.1	13.1	13.6	13.2	13.5	14.6	13.8	14.0	13.8	12.6
White															
Civilian noninstitutional population[1]	171,478	173,085	172,394	172,491	172,597	172,730	172,859	172,999	173,133	173,275	173,432	173,585	173,709	173,821	173,812
Civilian labor force	115,415	116,509	116,356	116,455	116,237	116,344	116,193	116,518	116,492	116,619	116,495	116,654	116,703	117,008	117,716
Participation rate	67.3	67.3	67.5	67.5	67.3	67.4	67.2	67.4	67.3	67.3	67.2	67.2	67.2	67.3	67.7
Employed	110,931	112,235	111,978	112,017	112,030	111,886	111,898	112,115	112,193	112,308	112,303	112,548	112,611	112,951	113,704
Employment-population ratio[2]	64.7	64.8	65.0	64.9	64.9	64.8	64.7	64.8	64.8	64.8	64.8	64.8	64.8	65.0	65.4
Unemployed	4,484	4,273	4,378	4,438	4,207	4,458	4,295	4,403	4,299	4,311	4,192	4,106	4,092	4,057	4,011
Unemployment rate	3.9	3.7	3.8	3.8	3.6	3.8	3.7	3.8	3.7	3.7	3.6	3.5	3.5	3.5	3.4
Black															
Civilian noninstitutional population[1]	24,373	24,855	24,665	24,697	24,729	24,765	24,798	24,833	24,867	24,904	24,946	24,985	25,019	25,051	25,047
Civilian labor force	15,982	16,365	16,337	16,250	16,231	16,288	16,290	16,308	16,366	16,321	16,474	16,489	16,508	16,513	16,622
Participation rate	65.6	65.8	66.2	65.8	65.6	65.8	65.7	65.7	65.8	65.5	66.0	66.0	66.0	65.9	66.4
Employed	14,556	15,056	15,056	14,924	14,925	15,011	15,053	15,069	14,962	15,047	15,114	15,124	15,187	15,204	15,254
Employment-population ratio[2]	59.7	60.6	61.0	60.4	60.4	60.6	60.7	60.7	60.2	60.4	60.6	60.5	60.7	60.7	60.9
Unemployed	1,426	1,309	1,281	1,326	1,306	1,277	1,237	1,239	1,404	1,274	1,360	1,365	1,321	1,309	1,368
Unemployment rate	8.9	8.0	7.8	8.2	8.0	7.8	7.6	7.6	8.6	7.8	8.3	8.3	8.0	7.9	8.2

See footnotes at end of table.

4. Continued—Employment status of the population, by sex, age, race, and Hispanic origin, monthly data seasonally adjusted

[Numbers in thousands]

Employment status	Annual average		1999												2000
	1998	1999	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
Hispanic origin															
Civilian noninstitutional population[1]	21,070	21,650	21,296	21,355	21,414	21,483	21,548	21,618	21,684	21,752	21,820	21,881	21,947	22,008	22,047
Civilian labor force	14,317	14,665	14,448	14,520	14,542	14,535	14,555	14,624	14,617	14,710	14,766	14,809	14,887	14,984	15,251
Participation rate	67.9	67.7	67.8	68.0	67.9	67.7	67.5	67.6	67.4	67.6	67.7	67.7	67.8	68.1	69.2
Employed	13,291	13,720	13,473	13,536	13,673	13,541	13,574	13,655	13,696	13,759	13,795	13,879	13,979	14,095	14,395
Employment-population ratio[2]	63.1	63.4	63.3	63.4	63.8	63.0	63.0	63.2	63.2	63.3	63.2	63.4	63.7	64.0	65.3
Unemployed	1,026	945	975	984	869	994	981	969	921	951	971	930	908	889	856
Unemployment rate	7.2	6.4	6.7	6.8	6.0	6.8	6.7	6.6	6.3	6.5	6.6	6.3	6.1	5.9	5.6

[1] The population figures are not seasonally adjusted.

[2] Civilian employment as a percent of the civilian noninstitutional population.

NOTE: Detail for the above race and Hispanic-origin groups will not sum to totals because data for the "other races" groups are not presented and Hispanics are included in both the white and black population groups.

5. Selected employment indicators, monthly data seasonally adjusted

[In thousands]

Selected categories	Annual average		1999												2000
	1998	1999	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
Characteristic															
Employed, 16 years and over	131,463	133,488	133,225	133,029	132,976	133,054	133,190	133,398	133,399	133,530	133,650	133,940	134,098	134,420	135,221
Men	70,693	71,446	71,368	71,230	71,269	71,208	71,207	71,330	71,437	71,436	71,630	71,623	71,732	71,927	72,358
Women	60,771	62,042	61,857	61,799	61,707	61,846	61,983	62,068	61,962	62,094	62,020	62,317	62,366	62,493	62,863
Married men, spouse present	42,923	43,254	43,440	43,077	43,164	43,210	42,997	43,279	43,350	43,368	43,367	43,206	43,273	43,283	43,951
Married women, spouse present	32,872	33,450	33,526	33,130	33,167	33,284	33,442	33,758	33,387	33,504	33,275	33,521	33,635	33,762	34,166
Women who maintain families	7,904	8,229	8,089	8,103	8,142	8,081	8,081	8,028	8,272	8,335	8,312	8,398	8,526	8,375	8,362
Class of worker															
Agriculture:															
Wage and salary workers	2,000	1,944	1,962	1,900	1,905	1,930	1,930	1,923	1,939	1,908	1,930	1,936	2,049	2,018	2,024
Self-employed workers	1,341	1,297	1,324	1,376	1,358	1,399	1,330	1,341	1,292	1,266	1,198	1,267	1,216	1,211	1,320
Unpaid family workers	38	40	31	43	39	33	36	39	45	46	40	42	41	36	38
Nonagricultural industries:															
Wage and salary workers	119,019	121,323	120,777	120,967	120,939	120,925	121,311	121,006	121,188	121,150	121,583	121,654	121,965	122,426	122,823
Government	18,383	18,903	18,829	18,783	18,778	18,778	18,771	19,007	19,032	19,114	19,080	18,817	18,902	18,959	19,013
Private industries	100,637	102,420	101,948	102,184	102,161	102,147	102,540	101,999	102,156	102,036	102,503	102,837	103,063	103,467	103,810
Private households	962	933	895	861	926	935	914	983	944	873	1,035	939	944	948	952
Other	99,674	101,487	101,053	101,323	101,235	101,212	101,626	101,016	101,212	101,163	101,468	101,898	102,119	102,519	102,858
Self-employed workers	8,962	8,790	8,840	8,733	8,730	8,801	8,726	8,840	8,820	9,000	8,791	8,833	8,686	8,662	8,802
Unpaid family workers	103	95	110	108	127	65	61	88	77	93	100	101	108	98	92
Persons at work part time[1]															
All industries:															
Part time for economic reasons	3,665	3,357	3,489	3,425	3,509	3,403	3,399	3,377	3,316	3,279	3,283	3,179	3,274	3,320	3,219
Slack work or business conditions	2,095	1,968	2,051	1,985	2,018	1,937	1,950	2,048	1,974	1,904	1,922	1,928	1,930	1,951	1,893
Could only find part-time work	1,258	1,079	1,122	1,131	1,181	1,117	1,116	1,045	1,050	1,057	1,073	993	1,032	1,025	1,012
Part time for noneconomic reasons	18,530	18,758	18,589	18,677	18,622	18,752	18,692	18,716	18,983	19,230	18,801	18,799	18,651	18,618	18,889
Nonagricultural industries:															
Part time for economic reasons	3,501	3,189	3,341	3,282	3,325	3,225	3,229	3,209	3,142	3,127	3,112	2,983	3,105	3,157	3,066
Slack work or business conditions	1,997	1,861	1,948	1,900	1,927	1,845	1,845	1,902	1,850	1,813	1,806	1,807	1,815	1,843	1,801
Could only find part-time work	1,228	1,056	1,099	1,101	1,128	1,087	1,089	1,031	1,034	1,041	1,063	964	1,013	1,018	966
Part time for noneconomic reasons	17,954	18,197	18,033	18,094	18,031	18,159	18,138	18,106	18,466	18,652	18,273	18,249	18,083	18,061	18,347

[1] Excludes persons "with a job but not at work" during the survey period for such reasons as vacation, illness, or industrial disputes.

6. Selected unemployment indicators, monthly data seasonally adjusted

[Unemployment rates]

Selected categories	Annual average		1999												2000
	1998	1999	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
Characteristic															
Total, all workers	4.5	4.2	4.3	4.4	4.2	4.3	4.2	4.3	4.3	4.2	4.2	4.1	4.1	4.1	4.0
Both sexes, 16 to 19 years	14.6	13.9	15.1	14.2	14.2	14.1	13.1	13.6	13.2	13.5	14.6	13.8	14.0	13.8	12.6
Men, 20 years and over	3.7	3.5	3.5	3.7	3.3	3.5	3.6	3.5	3.5	3.5	3.4	3.5	3.3	3.3	3.3
Women, 20 years and over	4.1	3.8	3.8	3.8	3.9	4.0	3.7	3.8	3.9	3.7	3.7	3.5	3.6	3.6	3.7
White, total	3.9	3.7	3.8	3.8	3.6	3.8	3.7	3.8	3.7	3.7	3.6	3.5	3.5	3.5	3.4
Both sexes, 16 to 19 years	12.6	12.0	12.7	12.0	12.0	12.1	11.4	12.0	11.4	11.7	12.3	11.8	12.0	12.2	10.8
Men, 16 to 19 years	14.1	12.6	13.8	12.6	12.8	12.6	12.2	12.0	11.7	12.3	12.7	11.9	12.8	13.3	12.4
Women, 16 to 19 years	10.9	11.3	11.5	11.4	11.2	11.6	10.6	12.0	11.1	11.0	11.9	11.7	11.2	10.9	9.1
Men, 20 years and over	3.2	3.0	3.1	3.3	2.9	3.0	3.1	3.2	3.1	3.2	2.9	2.9	2.8	2.8	2.8
Women, 20 years and over	3.4	3.3	3.3	3.3	3.3	3.6	3.3	3.4	3.3	3.2	3.2	3.1	3.1	3.0	3.1
Black, total	8.9	8.0	7.8	8.2	8.0	7.8	7.6	7.6	8.6	7.8	8.3	8.3	8.0	7.9	8.2
Both sexes, 16 to 19 years	27.6	27.9	28.9	28.1	30.0	27.8	25.2	24.8	26.9	28.1	30.8	30.8	28.4	25.3	23.9
Men, 16 to 19 years	30.1	30.9	33.3	31.2	32.4	32.0	27.9	28.8	30.7	29.6	30.3	35.3	31.0	27.5	24.0
Women, 16 to 19 years	25.3	25.1	24.5	25.0	27.6	23.8	22.5	21.2	23.4	26.7	31.4	26.1	25.9	23.0	23.8
Men, 20 years and over	7.4	6.7	6.1	6.7	6.0	6.3	6.6	6.4	7.2	6.3	7.1	7.7	7.0	7.0	7.4
Women, 20 years and over	7.9	6.8	6.7	7.0	7.1	6.9	6.5	6.7	7.7	6.9	6.7	6.1	6.6	6.7	7.2
Hispanic origin, total	7.2	6.4	6.7	6.8	6.0	6.8	6.7	6.6	6.3	6.5	6.6	6.3	6.1	5.9	5.6
Married men, spouse present	2.4	2.2	2.3	2.4	2.1	2.3	2.3	2.2	2.3	2.3	2.2	2.2	2.1	2.2	2.0
Married women, spouse present	2.9	2.7	2.8	2.8	2.7	2.9	2.6	2.7	2.8	2.7	2.6	2.5	2.5	2.5	2.6
Women who maintain families	7.2	6.4	6.3	6.5	6.6	7.1	6.0	6.5	6.4	6.3	6.4	6.0	6.0	6.2	6.2
Full-time workers	4.3	4.1	4.1	4.3	4.0	4.2	4.0	4.0	4.1	4.1	4.0	4.0	3.9	3.9	3.9
Part-time workers	5.3	5.0	5.2	4.9	5.0	5.0	5.2	5.3	4.9	4.6	5.0	4.7	4.9	4.9	4.6
Industry															
Nonagricultural wage and salary workers	4.6	4.3	4.3	4.4	4.3	4.4	4.3	4.4	4.4	4.2	4.3	4.2	4.2	4.1	4.2
Mining	3.2	5.7	6.3	7.1	5.5	8.4	5.9	4.8	6.0	4.2	6.7	5.0	4.6	4.1	2.6
Construction	7.5	7.0	7.3	7.4	7.0	7.3	7.2	7.3	6.9	7.6	6.9	6.7	5.7	6.6	6.4
Manufacturing	3.9	3.6	3.5	3.7	3.5	3.4	3.5	3.7	3.5	3.8	3.9	3.7	3.7	3.6	3.2
Durable goods	3.4	3.5	3.3	3.3	3.1	3.2	3.4	3.5	3.7	3.7	4.0	3.5	3.7	3.6	2.8
Nondurable goods	4.7	3.9	3.9	4.3	4.2	3.9	3.8	4.0	3.1	4.1	3.9	4.0	3.7	3.5	3.9
Transportation and public utilities	3.4	3.0	2.6	3.1	2.9	2.9	3.2	2.9	3.4	3.0	2.8	3.1	3.3	3.0	3.7
Wholesale and retail trade	5.5	5.2	5.3	5.2	5.4	5.4	5.3	5.3	5.2	4.8	5.2	4.9	5.3	5.2	5.1
Finance, insurance, and real estate	2.5	2.3	2.4	2.4	2.0	3.2	2.2	2.4	2.4	2.4	2.3	2.3	2.3	2.1	2.5
Services	4.5	4.1	4.2	4.1	4.2	4.1	4.0	4.2	4.4	4.0	4.1	4.0	3.9	3.8	4.2
Government workers	2.3	2.2	2.2	2.3	2.1	2.4	2.5	2.3	2.2	2.1	2.0	2.1	2.0	2.1	2.1
Agricultural wage and salary workers	8.3	8.9	9.1	10.8	9.4	9.5	10.1	9.3	9.0	9.6	5.7	7.7	8.3	7.1	5.0
Educational attainment[1]															
Less than a high school diploma	7.1	6.7	7.2	7.4	6.3	6.8	6.8	6.8	6.8	7.0	6.8	6.6	6.5	6.0	6.6
High school graduates, no college	4.0	3.5	3.5	3.5	3.5	3.6	3.6	3.8	3.6	3.5	3.5	3.3	3.3	3.5	3.5
Some college, less than a bachelor's degree	3.0	2.8	2.9	3.1	2.8	2.9	2.8	2.6	3.0	3.1	2.7	2.7	2.7	2.5	2.6
College graduates	1.8	1.8	1.8	1.9	1.9	2.0	1.8	2.0	1.8	1.6	1.7	1.7	1.7	1.8	1.8

[1] Data refer to persons 25 years and over.

7. Duration of unemployment, monthly data seasonally adjusted

[Numbers in thousands]

Weeks of unemployment	Annual average		1999												2000
	1998	1999	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov,	Dec.	Jan.
Less than 5 weeks	2,622	2,568	2,397	2,585	2,521	2,741	2,502	2,540	2,640	2,599	2,582	2,545	2,601	2,620	2,447
5 to 14 weeks	1,950	1,832	2,012	1,925	1,884	1,868	1,832	1,775	1,778	1,798	1,805	1,811	1,760	1,694	1,754
15 weeks and over	1,637	1,480	1,491	1,539	1,467	1,474	1,519	1,634	1,511	1,463	1,412	1,434	1,401	1,388	1,372
15 to 26 weeks	763	755	776	754	752	794	784	806	779	747	708	719	725	693	667
27 weeks and over	875	725	715	785	715	680	735	828	732	716	704	715	676	695	705
Mean duration, in weeks	14.5	13.4	13.5	13.8	13.6	13.2	13.4	14.3	13.5	13.2	13.0	13.2	13.0	12.9	13.2
Median duration, in weeks	6.7	6.4	6.8	6.9	6.8	6.1	6.6	6.3	5.8	6.4	5.9	6.3	6.2	5.9	5.7

8. Unemployed persons by reason for unemployment, monthly data seasonally adjusted

[Numbers in thousands]

Reason for unemployment	Annual average		1999												2000
	1998	1999	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
Job losers[1]	2,822	2,622	2,708	2,721	2,646	2,695	2,678	2,670	2,670	2,629	2,573	2,518	2,493	2,401	2,477
On temporary layoff	866	848	863	854	833	843	837	876	847	893	869	802	851	795	739
Not on temporary layoff	1,957	1,774	1,845	1,867	1,813	1,852	1,841	1,794	1,823	1,736	1,704	1,716	1,642	1,606	1,739
Job leavers	734	783	729	750	774	810	781	831	768	793	758	778	821	825	776
Reentrants	2,132	2,005	2,009	2,090	2,007	2,039	2,034	2,038	2,003	1,942	1,967	1,958	1,935	2,036	2,043
New entrants	520	469	519	498	446	473	440	359	459	481	504	511	485	453	393
Percent of unemployed															
Job losers[1]	45.5	44.6	45.4	44.9	45.1	44.8	45.1	45.3	45.3	45.0	44.3	43.7	43.5	42.0	43.5
On temporary layoff	13.9	14.4	14.5	14.1	14.2	14.0	14.1	14.9	14.4	15.3	15.0	13.9	14.8	13.9	13.0
Not on temporary layoff	31.5	30.2	30.9	30.8	30.9	30.8	31.0	30.4	30.9	29.7	29.4	29.8	28.6	28.1	30.6
Job leavers	11.8	13.3	12.2	12.4	13.2	13.5	13.2	14.1	13.0	13.6	13.1	13.5	14.3	14.4	13.6
Reentrants	34.3	34.1	33.7	34.5	34.2	33.9	34.3	34.6	33.9	33.2	33.9	34.0	33.7	35.6	35.9
New entrants	8.4	8.0	8.7	8.2	7.6	7.9	7.4	6.1	7.8	8.2	8.7	8.9	8.5	7.9	6.9
Percent of civilian labor force															
Job losers[1]	2.1	1.9	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.7	1.8
Job leavers	.5	.6	.5	.5	.6	.6	.6	.6	.6	.6	.5	.6	.6	.6	.6
Reentrants	1.5	1.4	1.4	1.5	1.4	1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.4	1.5	1.4
New entrants	.4	.3	.4	.4	.3	.3	.3	.3	.3	.3	.4	.4	.3	.3	.3

[1] Includes persons who completed temporary jobs.

9. Unemployment rates by sex and age, monthly data seasonally adjusted

[Civilian workers]

Sex and age	Annual average		1999												2000
	1998	1999	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
Total, 16 years and over	4.5	4.2	4.3	4.4	4.2	4.3	4.2	4.3	4.3	4.2	4.2	4.1	4.1	4.1	4.0
16 to 24 years	10.4	9.9	10.1	10.2	10.0	10.0	9.6	9.8	9.7	9.6	10.0	10.0	10.0	9.8	9.3
16 to 19 years	14.6	13.9	15.1	14.2	14.2	14.1	13.1	13.6	13.2	13.5	14.6	13.9	14.0	13.8	12.6
16 to 17 years	17.2	16.3	17.9	15.8	16.6	16.6	16.1	16.3	15.4	15.9	16.1	15.9	16.5	16.5	14.0
18 to 19 years	12.8	12.4	12.9	13.0	12.7	12.4	11.2	11.8	11.7	12.1	13.8	12.4	12.3	12.1	11.4
20 to 24 years	7.9	7.5	7.1	7.7	7.4	7.5	7.5	7.6	7.6	7.3	7.2	7.7	7.7	7.4	7.4
25 years and over	3.4	3.1	3.2	3.3	3.1	3.3	3.2	3.2	3.2	3.2	3.1	3.0	3.0	3.0	3.0
25 to 54 years	3.5	3.2	3.3	3.4	3.2	3.3	3.2	3.3	3.3	3.2	3.2	3.1	3.1	3.0	3.1
55 years and over	2.7	2.8	2.9	2.9	2.8	2.9	2.7	3.0	2.9	2.7	2.6	2.7	2.6	2.7	2.8
Men, 16 years and over	4.4	4.1	4.2	4.3	4.0	4.1	4.2	4.1	4.1	4.1	4.0	4.1	4.0	4.0	3.9
16 to 24 years	11.1	10.3	10.7	10.3	10.1	10.5	10.2	10.5	10.2	9.9	9.9	10.4	10.2	10.6	9.7
16 to 19 years	16.2	14.7	16.4	14.9	15.0	14.8	13.9	14.3	13.8	13.9	14.6	14.2	14.9	15.2	14.0
16 to 17 years	19.1	17.0	19.3	16.0	17.3	18.3	17.6	16.8	16.1	16.2	16.6	15.5	16.9	17.7	14.3
18 to 19 years	14.1	13.1	14.3	13.9	13.5	12.6	11.5	12.7	12.2	12.6	13.2	13.2	13.6	13.5	13.7
20 to 24 years	8.1	7.7	7.3	7.6	7.2	7.9	8.0	8.3	8.1	7.6	7.2	8.2	7.5	7.8	7.2
25 years and over	3.2	3.0	3.0	3.2	2.8	3.0	3.1	3.0	3.0	3.1	3.0	2.9	2.8	2.8	2.8
25 to 54 years	3.3	3.0	3.1	3.2	2.9	3.0	3.1	3.0	3.0	3.1	3.0	3.0	2.9	2.9	2.9
55 years and over	2.8	2.8	2.8	2.9	2.6	2.7	2.8	2.7	3.0	2.9	2.9	2.8	2.6	2.5	2.5
Women, 16 years and over	4.6	4.3	4.4	4.4	4.5	4.6	4.2	4.4	4.4	4.3	4.3	4.2	4.2	4.1	4.2
16 to 24 years	9.8	9.5	9.5	10.0	9.9	9.5	8.9	9.1	9.1	9.3	10.0	9.6	9.8	8.9	8.9
16 to 19 years	12.9	13.2	13.7	13.4	13.4	13.4	12.2	13.0	12.6	13.2	14.7	13.4	13.0	12.2	11.1
16 to 17 years	15.1	15.5	16.3	15.5	15.9	14.8	14.5	15.7	14.7	15.6	15.6	16.3	16.1	15.1	13.7
18 to 19 years	11.5	11.6	11.5	12.0	11.7	12.1	10.9	10.9	11.2	11.6	14.5	11.4	10.8	10.5	8.9
20 to 24 years	7.8	7.2	7.0	7.9	7.7	7.1	6.9	6.8	7.1	7.0	7.2	7.2	7.9	7.0	7.6
25 years and over	3.6	3.3	3.4	3.4	3.4	3.6	3.3	3.5	3.5	3.3	3.2	3.1	3.1	3.2	3.2
25 to 54 years	3.8	3.4	3.5	3.5	3.5	3.7	3.4	3.5	3.6	3.4	3.4	3.2	3.3	3.2	3.3
55 years and over	2.6	2.8	3.0	2.8	3.1	3.1	2.6	3.3	2.9	2.4	2.1	2.5	2.6	2.9	3.1

10. Unemployment rates by State, seasonally adjusted

State	Dec. 1998	Nov. 1999	Dec. 1999[p]	State	Dec. 1998	Nov. 1999	Dec. 1999[p]
Alabama	4.0	4.4	4.8	Missouri	3.2	2.7	2.8
Alaska	5.6	5.9	5.7	Montana	5.4	4.8	4.9
Arizona	3.9	4.0	4.1	Nebraska	2.5	2.6	2.7
Arkansas	5.2	4.3	4.3	Nevada	3.3	4.5	4.0
California	5.9	4.9	4.9	New Hampshire	2.8	2.7	2.5
Colorado	3.4	2.8	3.0	New Jersey	4.4	4.4	4.1
Connecticut	3.2	2.9	2.7	New Mexico	6.4	6.0	5.8
Delaware	3.2	3.3	3.5	New York	5.4	5.0	4.8
District of Columbia	7.8	5.9	6.1	North Carolina	3.1	3.2	3.2
Florida	4.2	4.0	3.8	North Dakota	2.6	2.8	2.7
Georgia	3.9	3.7	3.5	Ohio	4.0	4.0	4.0
Hawaii	6.1	5.4	5.1	Oklahoma	4.4	3.2	3.3
Idaho	4.9	4.6	4.4	Oregon	5.5	5.1	5.0
Illinois	4.2	4.2	4.1	Pennsylvania	4.4	4.3	4.1
Indiana	3.0	3.0	2.9	Rhode Island	4.1	3.9	3.8
Iowa	2.7	2.1	2.2	South Carolina	3.9	4.7	4.4
Kansas	3.6	3.3	3.4	South Dakota	2.6	2.6	2.4
Kentucky	4.1	3.9	3.9	Tennessee	4.1	3.7	3.8
Louisiana	5.3	4.9	4.2	Texas	4.8	4.4	4.6
Maine	3.8	3.5	3.6	Utah	3.3	2.9	2.9
Maryland	3.9	3.3	3.2	Vermont	3.0	2.7	2.7
Massachusetts	3.1	3.2	3.2	Virginia	2.9	2.8	2.8
Michigan	3.8	3.8	3.6	Washington	4.9	4.0	4.2
Minnesota	2.4	2.4	2.4	West Virginia	6.0	6.6	6.1
Mississippi	5.2	4.6	5.3	Wisconsin	3.6	2.9	3.0
				Wyoming	4.5	4.4	4.4

[p] = preliminary

11. Employment of workers on nonfarm payrolls by State, seasonally adjusted

[In thousands]

State	Dec. 1998	Nov. 1999	Dec. 1999[p]	State	Dec. 1998	Nov. 1999	Dec. 1999[p]
Alabama	1,923.0	1,932.1	1,934.3	Missouri	2,717.6	2,709.0	2,704.8
Alaska	276.1	278.8	279.4	Montana	376.8	385.4	385.7
Arizona	2,117.7	2,180.5	2,187.3	Nebraska	886.7	879.1	882.3
Arkansas	1,131.4	1,146.7	1,151.1	Nevada	946.7	989.9	992.6
California	13,782.9	14,121.0	14,184.7	New Hampshire	591.5	600.8	603.4
Colorado	2,076.2	2,119.5	2,124.5	New Jersey	3,833.2	3,889.1	3,898.5
Connecticut	1,660.3	1,678.8	1,683.2	New Mexico	725.8	736.1	739.7
Delaware	406.1	416.0	416.2	New York	8,312.9	8,454.9	8,473.5
District of Columbia	615.4	620.9	621.1	North Carolina	3,823.2	3,849.7	3,849.1
Florida	6,791.4	7,037.2	7,068.1	North Dakota	319.3	318.9	319.9
Georgia	3,796.3	3,926.0	3,954.1	Ohio	5,501.3	5,531.8	5,545.6
Hawaii	527.2	532.0	530.2	Oklahoma	1,454.2	1,487.5	1,489.3
Idaho	532.8	532.0	538.0	Oregon	1,573.6	1,596.8	1,597.3
Illinois	5,947.1	5,980.7	5,972.6	Pennsylvania	5,526.4	5,544.3	5,532.3
Indiana	2,940.7	2,955.3	2,959.3	Rhode Island	461.0	468.7	466.8
Iowa	1,466.9	1,495.9	1,503.7	South Carolina	1,812.0	1,849.9	1,855.3
Kansas	1,330.6	1,350.8	1,351.9	South Dakota	364.9	365.8	369.0
Kentucky	1,765.6	1,800.9	1,801.9	Tennessee	2,655.8	2,678.6	2,679.7
Louisiana	1,918.3	1,927.8	1,926.5	Texas	9,063.9	9,293.6	9,311.0
Maine	577.1	590.0	590.0	Utah	1,036.9	1,062.4	1,064.0
Maryland	2,346.3	2,388.3	2,393.6	Vermont	288.6	293.4	294.6
Massachusetts	3,198.5	3,233.6	3,248.2	Virginia	3,348.8	3,407.8	3,412.5
Michigan	4,547.1	4,575.1	4,589.6	Washington	2,625.6	2,668.3	2,676.3
Minnesota	2,592.3	2,633.1	2,636.7	West Virginia	724.3	728.9	728.3
Mississippi	1,134.9	1,131.0	1,134.4	Wisconsin	2,731.5	2,749.7	2,756.4
				Wyoming	228.0	232.2	232.5

[p] = preliminary

NOTE: Some data in this table may differ from data published elsewhere because of the continual updating of the data base.

12. Employment of workers on nonfarm payrolls by industry, monthly data seasonally adjusted

[In thousands]

Industry	Annual average		1999												2000
	1998	1999[P]	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.[P]	Jan.[P]
TOTAL	125,826	128,616	127,378	127,730	127,813	128,134	128,162	128,443	128,816	128,945	129,048	129,332	129,589	129,905	130,292
PRIVATE SECTOR	106,007	108,455	107,386	107,676	107,726	108,035	108,085	108,338	108,663	108,735	108,830	109,095	109,320	109,584	109,936
GOODS-PRODUCING	25,347	25,240	25,315	25,329	25,285	25,288	25,199	25,180	25,247	25,148	25,186	25,198	25,257	25,275	25,406
Mining	590	535	560	553	550	538	531	526	528	524	527	528	527	529	531
Metal mining	50	49	50	50	50	49	49	48	48	47	48	48	49	48	49
Oil and gas extraction	339	293	312	306	305	294	287	285	285	285	287	289	288	291	294
Nonmetallic minerals, except fuels	109	109	109	109	108	109	109	109	110	109	109	109	108	108	107
Construction	5,985	6,273	6,170	6,238	6,232	6,277	6,239	6,258	6,270	6,246	6,293	6,314	6,369	6,391	6,507
General building contractors	1,372	1,434	1,410	1,426	1,429	1,428	1,427	1,430	1,432	1,426	1,440	1,445	1,450	1,454	1,471
Heavy construction, except building	838	862	871	869	864	874	854	857	857	852	857	861	870	879	899
Special trades contractors	3,744	3,978	3,889	3,943	3,939	3,975	3,958	3,971	3,981	3,968	3,996	4,008	4,049	4,058	4,137
Manufacturing	18,772	18,431	18,585	18,538	18,503	18,473	18,429	18,396	18,449	18,378	18,366	18,356	18,361	18,355	18,368
Production workers	12,930	12,661	12,773	12,730	12,714	12,696	12,662	12,623	12,691	12,622	12,617	12,608	12,613	12,608	12,628
Durable goods	11,170	10,985	11,050	11,027	11,014	10,993	10,971	10,960	11,015	10,975	10,959	10,952	10,954	10,954	10,964
Production workers	7,643	7,510	7,548	7,529	7,527	7,519	7,504	7,487	7,549	7,513	7,496	7,489	7,487	7,482	7,503
Lumber and wood products	813	826	826	827	827	824	824	824	826	826	827	829	829	829	830
Furniture and fixtures	530	540	534	535	535	536	537	538	546	543	544	546	544	543	542
Stone, clay, and glass products	563	569	569	571	569	570	569	568	571	568	569	568	571	573	574
Primary metal industries	712	690	696	695	693	691	689	687	692	688	685	685	686	686	685
Fabricated metal products	1,501	1,489	1,495	1,491	1,490	1,489	1,487	1,485	1,493	1,484	1,486	1,487	1,489	1,490	1,489
Industrial machinery and equipment	2,203	2,129	2,148	2,146	2,139	2,132	2,129	2,128	2,131	2,122	2,117	2,116	2,118	2,117	2,114
Computer and office equipment	379	360	362	362	360	361	362	364	360	359	358	358	358	359	356
Electronic and other electrical equipment	1,704	1,661	1,663	1,659	1,659	1,658	1,658	1,657	1,667	1,662	1,662	1,665	1,661	1,663	1,671
Electronic components and accessories	660	639	637	636	636	635	635	637	639	641	640	643	643	645	646
Transportation equipment	1,884	1,855	1,884	1,871	1,873	1,864	1,853	1,849	1,863	1,859	1,848	1,838	1,834	1,831	1,837
Motor vehicles and equipment	990	1,000	996	989	992	996	996	998	1,014	1,012	1,006	1,001	1,000	1,001	1,009
Aircraft and parts	524	490	517	510	511	503	498	491	488	483	476	471	467	464	461
Instruments and related products	868	839	849	847	844	842	839	837	840	836	833	830	833	832	831
Miscellaneous manufacturing industries	393	387	386	385	385	387	386	387	386	387	388	388	389	390	391
Nondurable goods	7,602	7,446	7,535	7,511	7,489	7,480	7,458	7,436	7,434	7,403	7,407	7,404	7,407	7,401	7,404
Production workers	5,287	5,151	5,225	5,201	5,187	5,177	5,158	5,136	5,142	5,109	5,121	5,119	5,126	5,126	5,125
Food and kindred products	1,686	1,685	1,699	1,695	1,693	1,689	1,688	1,680	1,681	1,666	1,679	1,680	1,686	1,689	1,693
Tobacco products	41	39	40	40	39	38	38	39	39	36	38	38	39	38	39
Textile mill products	598	562	579	575	571	567	563	560	559	557	553	551	553	551	548
Apparel and other textile products	763	684	718	707	702	698	691	686	679	672	669	666	663	659	656
Paper and allied products	675	659	664	664	662	662	661	659	659	658	657	655	655	655	655
Printing and publishing	1,565	1,553	1,561	1,559	1,557	1,555	1,551	1,552	1,554	1,553	1,552	1,552	1,549	1,548	1,548
Chemicals and allied products	1,043	1,035	1,041	1,041	1,037	1,038	1,036	1,033	1,032	1,030	1,033	1,033	1,033	1,030	1,034
Petroleum and coal products	140	137	139	139	139	139	138	137	138	136	137	136	136	135	137
Rubber and miscellaneous plastics products	1,009	1,019	1,016	1,015	1,014	1,019	1,018	1,016	1,021	1,022	1,017	1,021	1,022	1,025	1,023
Leather and leather products	83	74	78	76	75	75	74	74	72	73	72	72	71	71	71
SERVICE-PRODUCING	100,480	103,376	102,063	102,401	102,528	102,846	102,963	103,263	103,569	103,797	103,862	104,134	104,332	104,630	104,886
Transportation and public utilities	6,600	6,792	6,708	6,723	6,732	6,750	6,758	6,781	6,799	6,813	6,831	6,841	6,862	6,896	6,912
Transportation	4,276	4,426	4,356	4,367	4,378	4,397	4,402	4,423	4,438	4,445	4,455	4,458	4,474	4,506	4,519
Railroad transportation	231	230	233	233	235	234	233	233	230	226	227	227	226	227	228
Local and interurban passenger transit	468	482	474	475	476	483	480	483	483	488	486	486	487	486	491
Trucking and warehousing	1,745	1,813	1,786	1,789	1,796	1,800	1,802	1,810	1,817	1,817	1,825	1,828	1,839	1,846	1,850
Water transportation	180	181	182	181	177	180	180	181	182	182	182	182	180	182	179
Transportation by air	1,183	1,238	1,204	1,213	1,218	1,220	1,226	1,234	1,240	1,246	1,250	1,251	1,257	1,278	1,287
Pipelines, except natural gas	14	13	14	14	14	14	13	13	13	13	13	13	13	13	13
Transportation services	455	469	463	462	462	466	468	469	473	473	472	471	472	474	471
Communications and public utilities	2,324	2,366	2,352	2,356	2,354	2,353	2,356	2,358	2,361	2,368	2,376	2,383	2,388	2,390	2,393
Communications	1,469	1,522	1,502	1,507	1,506	1,508	1,513	1,513	1,519	1,525	1,533	1,541	1,546	1,550	1,553
Electric, gas, and sanitary services	855	844	850	849	848	845	843	845	842	843	843	842	842	840	840
Wholesale trade	6,831	7,004	6,924	6,937	6,947	6,965	6,977	6,993	7,012	7,031	7,041	7,064	7,070	7,086	7,105
Retail trade	22,296	22,788	22,556	22,648	22,611	22,724	22,748	22,796	22,903	22,888	22,862	22,891	22,902	22,981	23,024
Building materials and garden supplies	948	987	972	979	982	982	979	982	986	988	992	1,001	1,004	1,005	1,010
General merchandise stores	2,730	2,775	2,773	2,781	2,794	2,799	2,784	2,782	2,778	2,774	2,762	2,756	2,753	2,795	2,778
Department stores	2,426	2,472	2,470	2,475	2,489	2,499	2,486	2,482	2,476	2,468	2,460	2,455	2,450	2,481	2,448

See footnotes at end of table.

12. Continued—Employment of workers on nonfarm payrolls by industry, monthly data seasonally adjusted

[In thousands]

Industry	Annual average		1999												2000
	1998	1999[P]	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.[P]	Jan.[P]
Food stores	3,482	3,483	3,481	3,492	3,490	3,492	3,487	3,479	3,478	3,484	3,478	3,481	3,480	3,483	3,482
Automotive dealers and service stations	2,341	2,406	2,377	2,390	2,392	2,399	2,400	2,403	2,407	2,409	2,415	2,420	2,424	2,431	2,444
New and used car dealers	1,048	1,081	1,061	1,065	1,069	1,074	1,077	1,080	1,085	1,089	1,091	1,092	1,096	1,097	1,100
Apparel and accessory stores	1,143	1,181	1,152	1,167	1,167	1,163	1,172	1,178	1,192	1,191	1,189	1,200	1,198	1,187	1,203
Furniture and home furnishings stores	1,026	1,085	1,055	1,064	1,070	1,081	1,084	1,091	1,090	1,094	1,097	1,099	1,095	1,101	1,104
Eating and drinking places	7,760	7,903	7,843	7,855	7,785	7,863	7,880	7,911	7,989	7,960	7,932	7,925	7,943	7,982	7,986
Miscellaneous retail establishments	2,867	2,968	2,903	2,920	2,931	2,945	2,962	2,970	2,983	2,988	2,997	3,009	3,005	2,997	3,017
Finance, insurance, and real estate	7,407	7,632	7,570	7,581	7,595	7,611	7,621	7,636	7,647	7,650	7,653	7,668	7,675	7,687	7,678
Finance	3,593	3,706	3,675	3,681	3,690	3,697	3,706	3,709	3,715	3,716	3,715	3,719	3,723	3,728	3,719
Depository institutions	2,042	2,047	2,049	2,051	2,051	2,050	2,047	2,045	2,044	2,046	2,047	2,047	2,044	2,040	2,039
Commercial banks	1,468	1,465	1,469	1,470	1,469	1,467	1,465	1,463	1,462	1,464	1,466	1,464	1,460	1,459	1,457
Savings institutions	258	256	258	258	258	257	256	256	256	255	255	254	254	252	250
Nondepository institutions	658	714	705	708	712	716	720	721	721	719	713	711	711	714	705
Security and commodity brokers	645	679	663	661	664	668	672	676	682	685	686	691	697	703	705
Holding and other investment offices	248	266	258	261	263	263	267	267	268	266	269	270	271	271	270
Insurance	2,344	2,402	2,383	2,386	2,392	2,395	2,399	2,402	2,404	2,407	2,410	2,414	2,411	2,416	2,404
Insurance carriers	1,598	1,635	1,627	1,628	1,632	1,631	1,635	1,638	1,635	1,636	1,637	1,641	1,636	1,639	1,630
Insurance agents, brokers, and service	746	767	756	758	760	764	764	764	769	771	773	773	775	777	774
Real estate	1,471	1,525	1,512	1,514	1,513	1,519	1,516	1,525	1,528	1,527	1,528	1,535	1,541	1,543	1,555
Services[1]	37,526	39,000	38,313	38,458	38,556	38,697	38,782	38,952	39,055	39,205	39,257	39,433	39,554	39,659	39,811
Agricultural services	706	759	747	751	747	755	751	757	760	757	763	766	774	766	787
Hotels and other lodging places	1,776	1,799	1,785	1,786	1,789	1,791	1,786	1,797	1,807	1,813	1,811	1,806	1,812	1,809	1,794
Personal services	1,195	1,206	1,205	1,201	1,200	1,204	1,189	1,200	1,207	1,207	1,210	1,210	1,214	1,224	1,234
Business services	8,584	9,123	8,869	8,922	8,963	9,010	9,047	9,088	9,148	9,186	9,204	9,303	9,336	9,390	9,453
Services to buildings	950	988	971	971	973	978	979	984	992	998	1,000	1,003	1,003	999	1,003
Personnel supply services	3,230	3,405	3,308	3,331	3,343	3,350	3,366	3,387	3,422	3,418	3,440	3,490	3,501	3,518	3,528
Help supply services	2,872	3,017	2,933	2,954	2,967	2,975	2,986	3,000	3,025	3,024	3,032	3,099	3,097	3,111	3,121
Computer and data processing services	1,599	1,780	1,708	1,724	1,734	1,749	1,765	1,781	1,794	1,806	1,814	1,823	1,829	1,838	1,860
Auto repair services and parking	1,144	1,184	1,168	1,175	1,176	1,178	1,182	1,184	1,185	1,185	1,190	1,196	1,197	1,196	1,198
Miscellaneous repair services	382	397	392	392	393	396	398	395	395	396	398	400	400	405	404
Motion pictures	573	600	573	582	580	587	604	611	609	608	608	612	613	609	614
Amusement and recreation services	1,601	1,696	1,653	1,656	1,660	1,668	1,675	1,695	1,694	1,712	1,713	1,730	1,734	1,722	1,751
Health services	9,846	9,973	9,905	9,919	9,932	9,951	9,954	9,964	9,975	9,993	9,999	10,009	10,026	10,039	10,062
Offices and clinics of medical doctors	1,803	1,865	1,840	1,844	1,850	1,856	1,860	1,864	1,868	1,874	1,876	1,880	1,885	1,886	1,892
Nursing and personal care facilities	1,762	1,755	1,756	1,755	1,754	1,753	1,755	1,755	1,754	1,755	1,756	1,756	1,756	1,759	1,762
Hospitals	3,926	3,970	3,954	3,959	3,963	3,966	3,966	3,969	3,968	3,973	3,977	3,978	3,978	3,984	3,993
Home health care services	672	655	645	651	653	656	653	653	655	658	657	658	658	661	660
Legal services	973	1,002	989	992	995	998	999	1,002	1,000	1,004	1,007	1,009	1,012	1,015	1,018
Educational services	2,177	2,269	2,218	2,237	2,243	2,254	2,265	2,272	2,278	2,288	2,289	2,288	2,298	2,304	2,287
Social services	2,644	2,782	2,721	2,734	2,744	2,755	2,760	2,778	2,763	2,799	2,803	2,817	2,840	2,851	2,872
Child day care services	605	632	621	625	627	628	629	633	632	631	631	634	646	649	656
Residential care	747	781	765	768	769	772	775	777	781	785	788	792	796	802	803
Museums and botanical and zoological gardens	93	94	94	94	95	94	93	94	94	95	94	95	96	95	95
Membership organizations	2,361	2,402	2,385	2,389	2,392	2,392	2,394	2,409	2,403	2,409	2,408	2,409	2,411	2,418	2,418
Engineering and management services	3,185	3,420	3,316	3,335	3,354	3,370	3,391	3,411	3,441	3,458	3,464	3,487	3,496	3,520	3,526
Engineering and architectural services	905	944	926	930	933	939	940	942	948	948	948	954	959	965	973
Management and public relations	1,034	1,158	1,103	1,111	1,123	1,133	1,143	1,153	1,165	1,178	1,180	1,193	1,196	1,218	1,221
Government	19,819	20,161	19,992	20,054	20,087	20,099	20,077	20,105	20,153	20,210	20,218	20,237	20,269	20,321	20,356
Federal	2,686	2,668	2,702	2,713	2,710	2,688	2,666	2,664	2,656	2,651	2,654	2,643	2,648	2,643	2,663
Federal, except Postal Service	1,819	1,796	1,822	1,834	1,831	1,809	1,788	1,789	1,779	1,779	1,785	1,780	1,780	1,778	1,787
State	4,612	4,696	4,644	4,670	4,680	4,688	4,677	4,675	4,682	4,706	4,717	4,722	4,729	4,735	4,735
Education	1,916	1,953	1,920	1,941	1,948	1,955	1,941	1,934	1,947	1,965	1,965	1,960	1,967	1,974	1,976
Other State government	2,695	2,743	2,724	2,729	2,732	2,733	2,736	2,741	2,735	2,741	2,752	2,762	2,762	2,761	2,795
Local	12,521	12,797	12,646	12,671	12,697	12,723	12,734	12,766	12,815	12,853	12,847	12,872	12,892	12,943	12,958
Education	7,082	7,265	7,165	7,181	7,200	7,206	7,225	7,239	7,268	7,308	7,295	7,305	7,318	7,353	7,358
Other local government	5,440	5,531	5,481	5,490	5,497	5,517	5,509	5,527	5,547	5,545	5,552	5,567	5,574	5,590	5,600

[1] Includes other industries not shown separately.

[P] = preliminary.

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

13. Average weekly hours of production or nonsupervisory workers on private nonfarm payrolls, by industry, monthly data seasonally adjusted

Industry	Annual average		1999												2000
	1998	1999[P]	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.[P]	Jan.[P]
PRIVATE SECTOR	34.6	34.5	34.6	34.6	34.5	34.4	34.4	34.5	34.5	34.5	34.4	34.5	34.5	34.5	34.6
GOODS-PRODUCING	41.0	41.0	41.1	41.0	40.8	40.9	41.0	41.2	41.2	41.1	41.1	41.1	41.3	40.9	41.1
MINING	43.9	43.9	42.9	43.0	42.9	43.8	44.1	44.0	45.1	44.2	44.3	44.1	44.2	44.2	45.0
MANUFACTURING	41.7	41.7	41.6	41.6	41.5	41.6	41.7	41.7	41.9	41.8	41.8	41.8	41.7	41.6	41.7
Overtime hours	4.6	4.6	4.5	4.5	4.5	4.3	4.6	4.7	4.7	4.7	4.7	4.7	4.6	4.7	4.6
Durable goods	42.3	42.2	42.2	42.2	42.0	42.1	42.2	42.3	42.5	42.4	42.4	42.3	42.2	42.0	42.2
Overtime hours	4.8	4.8	4.6	4.6	4.6	4.3	4.7	4.8	4.9	4.9	4.9	4.8	4.7	4.8	4.7
Lumber and wood products	41.1	41.2	41.7	41.1	41.2	41.2	41.2	41.1	41.1	41.3	41.1	41.1	41.1	40.9	41.1
Furniture and fixtures	40.6	40.3	40.4	40.3	40.3	40.4	40.4	40.4	40.6	40.3	40.4	40.2	39.9	40.2	40.2
Stone, clay, and glass products	43.5	43.4	43.8	43.4	42.9	43.1	43.4	43.4	43.6	43.6	43.6	43.4	43.9	43.2	43.5
Primary metal industries	44.2	44.2	43.7	43.8	43.9	44.0	44.3	44.3	44.5	44.4	44.4	44.3	44.3	44.4	44.4
Blast furnaces and basic steel products	44.6	44.8	43.8	43.8	43.9	44.5	44.8	45.2	45.2	45.1	45.0	45.0	45.3	45.5	44.8
Fabricated metal products	42.3	42.2	42.1	42.1	42.1	41.8	42.1	42.1	42.3	42.4	42.3	42.1	42.1	41.9	42.2
Industrial machinery and equipment	42.8	42.2	42.1	42.1	41.9	41.9	42.1	42.0	42.4	42.4	42.4	42.4	42.2	42.2	42.4
Electronic and other electrical equipment	41.4	41.4	41.2	41.2	41.0	41.1	41.5	41.5	41.7	41.7	41.6	41.6	41.4	41.1	41.1
Transportation equipment	43.4	43.8	43.5	44.0	43.7	44.0	43.5	44.2	44.4	44.0	44.0	43.9	43.5	43.3	44.0
Motor vehicles and equipment	43.5	45.0	44.3	45.0	44.7	45.1	44.4	45.4	46.0	45.2	45.2	45.3	44.7	44.5	45.4
Instruments and related products	41.3	41.5	41.2	41.3	41.2	41.6	41.6	41.5	41.7	41.6	41.6	41.5	41.5	41.6	41.4
Miscellaneous manufacturing	39.9	39.9	39.6	39.7	39.8	39.6	40.2	40.0	40.1	40.1	40.0	39.8	39.6	39.9	39.3
Nondurable goods	40.9	40.9	40.8	40.8	40.8	40.9	41.0	41.0	41.1	40.9	40.9	41.0	41.0	40.9	40.9
Overtime hours	4.3	4.4	4.4	4.3	4.4	4.2	4.4	4.5	4.5	4.4	4.4	4.5	4.4	4.6	4.4
Food and kindred products	41.7	41.8	41.8	41.7	41.7	41.9	41.8	41.8	42.0	41.6	41.7	42.0	41.9	41.6	41.6
Textile mill products	41.0	40.9	40.8	40.6	40.4	41.0	41.0	40.6	41.3	40.9	40.8	41.3	41.2	41.2	40.9
Apparel and other textile products	37.3	37.4	37.0	37.5	37.4	37.5	37.8	37.7	37.5	37.3	37.5	37.5	37.3	37.4	37.6
Paper and allied products	43.4	43.5	43.5	43.5	43.7	43.6	43.5	43.5	43.5	43.7	43.5	43.5	43.5	43.2	43.2
Printing and publishing	38.3	38.2	38.2	38.1	37.9	38.1	38.3	38.3	38.4	38.3	38.3	38.4	38.3	38.3	38.3
Chemicals and allied products	43.2	43.0	42.9	42.8	42.8	43.0	43.0	43.0	43.1	43.3	43.2	43.1	43.1	43.1	42.9
Rubber and miscellaneous plastics products	41.7	41.7	41.4	41.7	41.8	41.5	41.9	41.8	41.7	41.6	41.7	41.5	41.5	41.3	41.9
Leather and leather products	37.6	37.7	37.3	37.7	37.7	38.1	38.4	37.9	37.9	38.2	37.2	37.5	37.6	37.2	38.0
SERVICE-PRODUCING	32.9	32.8	32.9	33.0	32.8	32.8	32.8	32.8	32.9	32.9	32.8	32.8	32.8	32.9	32.9
TRANSPORTATION AND PUBLIC UTILITIES	39.5	38.7	39.3	39.2	39.1	39.0	38.8	38.9	38.7	38.9	38.6	38.5	38.2	38.4	38.6
WHOLESALE TRADE	38.4	38.4	38.4	38.5	38.4	38.4	38.3	38.4	38.4	38.4	38.5	38.6	38.4	38.5	38.6
RETAIL TRADE	29.0	29.0	29.0	29.2	29.0	29.0	29.1	29.1	29.1	29.0	28.8	28.9	28.9	29.1	29.0

[P] = preliminary.

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

14. Average hourly earnings of production or nonsupervisory workers on private nonfarm payrolls, by industry, seasonally adjusted

Industry	Annual average		1999												2000
	1998	1999[P]	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.[P]	Jan.[P]
PRIVATE SECTOR (in current dollars)	$ 12.78	$ 13.24	$13.04	$13.06	$13.11	$13.14	$13.18	$13.24	$13.28	$13.29	$13.35	$13.39	$13.40	$13.44	$13.50
Goods-producing	14.34	14.82	14.53	14.56	14.61	14.67	14.75	14.85	14.90	14.90	14.93	14.97	14.99	15.03	15.09
Mining	16.90	17.04	17.07	16.97	17.00	16.87	17.05	16.96	17.23	17.12	17.09	17.09	16.93	17.03	17.03
Construction	16.59	17.13	16.80	16.83	16.92	16.97	17.08	17.16	17.18	17.15	17.21	17.27	17.31	17.42	17.46
Manufacturing	13.49	13.91	13.64	13.67	13.71	13.79	13.85	13.95	14.02	14.03	14.04	14.07	14.06	14.08	14.13
Excluding overtime	12.79	13.18	12.93	12.97	13.00	13.09	13.13	13.20	13.26	13.28	13.29	13.33	13.32	13.35	13.39
Service-producing	12.27	12.74	12.56	12.58	12.63	12.65	12.68	12.73	12.77	12.79	12.85	12.89	12.90	12.95	13.00
Transportation and public utilities	15.31	15.67	15.49	15.51	15.53	15.60	15.65	15.65	15.70	15.70	15.76	15.76	15.81	15.93	15.84
Wholesale trade	14.06	14.59	14.36	14.36	14.42	14.44	14.48	14.56	14.61	14.63	14.74	14.80	14.81	14.87	14.95
Retail trade	8.73	9.08	8.93	8.95	8.98	9.03	9.04	9.06	9.10	9.13	9.15	9.18	9.20	9.27	9.27
Finance, insurance, and real estate	14.06	14.61	14.46	14.49	14.51	14.58	14.60	14.62	14.68	14.63	14.70	14.72	14.73	14.75	14.90
Services	12.85	13.38	13.17	13.22	13.27	13.28	13.33	13.38	13.42	13.44	13.49	13.55	13.55	13.59	13.65
PRIVATE SECTOR (in constant (1982) dollars)	7.75	7.86	7.83	7.84	7.86	7.83	7.85	7.89	7.88	7.87	7.86	7.87	7.87	7.87	–

– Data not available.

[P] = preliminary.

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

15. Average hourly earnings of production or nonsupervisory workers on private nonfarm payrolls, by industry

Industry	Annual average		1999												2000
	1998	1999[P]	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.[P]	Jan.[P]
PRIVATE SECTOR	$12.78	$13.24	$13.11	$13.10	$13.12	$13.16	$13.19	$13.14	$13.15	$13.20	$13.38	$13.41	$13.43	$13.46	$13.59
MINING	16.90	17.04	17.23	17.08	17.01	16.93	17.00	16.93	17.12	17.01	17.10	17.00	16.95	17.15	17.26
CONSTRUCTION	16.59	17.13	16.74	16.66	16.79	16.85	17.02	17.08	17.22	17.26	17.41	17.49	17.37	17.42	17.36
MANUFACTURING	13.49	13.91	13.66	13.66	13.73	13.80	13.85	13.91	13.92	13.95	14.11	14.04	14.08	14.20	14.17
Durable goods	13.98	14.40	14.11	14.12	14.20	14.27	14.34	14.40	14.38	14.47	14.63	14.55	14.58	14.73	14.67
Lumber and wood products	11.10	11.46	11.28	11.26	11.31	11.37	11.42	11.45	11.52	11.53	11.55	11.59	11.59	11.64	11.71
Furniture and fixtures	10.90	11.23	11.10	11.06	11.10	11.14	11.14	11.16	11.24	11.28	11.33	11.33	11.35	11.47	11.38
Stone, clay, and glass products	13.60	13.90	13.66	13.64	13.70	13.75	13.87	13.94	14.00	13.97	14.12	14.02	14.07	14.00	14.02
Primary metal industries	15.49	15.85	15.39	15.41	15.53	15.62	15.75	15.91	16.03	15.99	16.20	16.02	16.14	16.19	16.15
Blast furnaces and basic steel products	18.43	18.87	18.41	18.50	18.56	18.59	18.79	19.05	19.12	18.99	19.05	18.96	19.18	19.17	19.26
Fabricated metal products	13.06	13.46	13.29	13.29	13.33	13.36	13.45	13.46	13.45	13.50	13.61	13.50	13.57	13.68	13.64
Industrial machinery and equipment	14.47	15.01	14.69	14.72	14.81	14.85	14.95	14.99	15.07	15.13	15.23	15.18	15.21	15.36	15.33
Electronic and other electrical equipment	13.09	13.45	13.26	13.25	13.27	13.31	13.38	13.40	13.49	13.51	13.62	13.58	13.59	13.69	13.66
Transportation equipment	17.53	18.10	17.47	17.50	17.66	17.88	17.98	18.20	17.94	18.23	18.56	18.47	18.46	18.78	18.56
Motor vehicles and equipment	17.86	18.48	17.65	17.71	17.98	18.31	18.40	18.68	18.23	18.61	19.04	18.93	18.87	19.29	18.99
Instruments and related products	13.81	14.17	13.91	13.94	13.97	14.07	14.10	14.13	14.25	14.28	14.30	14.36	14.34	14.39	14.37
Miscellaneous manufacturing	10.89	11.33	11.16	11.17	11.19	11.25	11.25	11.30	11.32	11.34	11.46	11.47	11.43	11.57	11.51
Nondurable goods	12.76	13.17	12.99	12.97	13.03	13.09	13.11	13.15	13.22	13.18	13.35	13.27	13.33	13.41	13.39
Food and kindred products	11.80	12.10	11.94	11.91	11.93	12.07	12.11	12.16	12.15	12.08	12.19	12.10	12.20	12.30	12.22
Tobacco products	18.55	19.07	17.14	17.80	19.33	19.99	20.63	20.79	21.15	20.99	18.88	17.77	17.96	17.96	17.66
Textile mill products	10.39	10.71	10.63	10.60	10.62	10.68	10.69	10.76	10.71	10.72	10.78	10.72	10.80	10.83	10.83
Apparel and other textile products	8.52	8.86	8.68	8.65	8.78	8.83	8.81	8.89	8.83	8.88	9.01	8.99	8.98	9.02	9.01
Paper and allied products	15.51	15.97	15.73	15.70	15.78	15.83	15.91	15.98	16.05	15.98	16.27	16.12	16.12	16.17	16.14
Printing and publishing	13.45	13.83	13.66	13.67	13.73	13.73	13.74	13.73	13.80	13.82	13.97	13.97	14.01	14.12	14.14
Chemicals and allied products	17.12	17.48	17.24	17.20	17.18	17.27	17.39	17.35	17.49	17.51	17.78	17.72	17.75	17.81	17.79
Petroleum and coal products	20.92	21.46	21.22	21.43	21.59	21.49	21.05	21.14	21.35	21.29	21.62	21.68	21.83	21.85	21.65
Rubber and miscellaneous plastics products	11.87	12.31	12.19	12.16	12.20	12.23	12.21	12.25	12.35	12.32	12.46	12.37	12.41	12.52	12.57
Leather and leather products	9.32	9.69	9.64	9.56	9.55	9.59	9.59	9.57	9.61	9.77	9.86	9.83	9.84	9.90	9.92
TRANSPORTATION AND PUBLIC UTILITIES	15.31	15.67	15.57	15.56	15.51	15.57	15.55	15.56	15.66	15.67	15.78	15.76	15.87	15.93	15.92
WHOLESALE TRADE	14.06	14.59	14.42	14.38	14.34	14.48	14.53	14.44	14.55	14.65	14.73	14.78	14.82	14.90	15.02
RETAIL TRADE	8.73	9.08	9.00	8.98	9.00	9.03	9.03	9.02	9.02	9.04	9.18	9.20	9.21	9.26	9.34
FINANCE, INSURANCE, AND REAL ESTATE	14.06	14.61	14.48	14.55	14.53	14.61	14.72	14.50	14.53	14.61	14.63	14.68	14.73	14.75	14.99
SERVICES	12.85	13.38	13.30	13.32	13.33	13.32	13.34	13.23	13.20	13.25	13.48	13.54	13.60	13.68	13.85

[P] = preliminary.

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

16. Average weekly earnings of production or nonsupervisory workers on private nonfarm payrolls, by industry

Industry	Annual average		1999												2000
	1998	1999[P]	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.[P]	Jan.[P]
PRIVATE SECTOR															
Current dollars	$442.19	$456.78	$445.74	$449.33	$448.70	$451.39	$456.37	$454.64	$456.31	$463.32	$458.93	$463.99	$463.34	$465.72	$466.14
Seasonally adjusted	–	–	451.18	451.88	452.30	452.02	453.39	456.78	458.16	458.51	459.24	461.96	462.30	463.68	467.10
Constant (1982) dollars	268.32	271.25	268.19	270.19	269.33	268.84	271.65	270.62	270.81	274.15	269.96	272.45	271.91	273.31	272.92
MINING	741.91	748.06	728.83	729.32	717.82	733.07	751.40	748.31	765.26	756.95	759.24	758.20	757.67	761.46	766.34
CONSTRUCTION	643.69	668.07	634.45	633.08	632.98	650.41	668.89	679.78	687.08	690.40	672.03	699.60	686.12	674.15	664.89
MANUFACTURING															
Current dollars	562.53	580.05	564.16	564.16	568.42	574.08	577.55	581.44	573.50	583.11	588.39	589.68	594.18	603.50	589.47
Constant (1982) dollars	341.34	344.45	339.45	339.24	341.19	341.92	343.78	346.10	340.36	345.04	346.11	346.26	348.70	354.17	345.12
Durable goods	591.35	607.68	591.21	591.63	596.40	602.19	606.58	610.56	598.21	612.08	615.92	618.38	622.57	634.86	619.07
Lumber and wood products	456.21	472.15	459.10	453.78	461.45	468.44	472.79	476.32	473.47	480.80	472.40	479.83	479.83	480.73	476.60
Furniture and fixtures	442.54	452.57	445.11	440.19	444.00	447.83	443.37	449.75	451.85	459.10	457.73	458.87	458.54	473.71	456.34
Stone, clay, and glass products	591.60	603.26	580.55	576.97	578.14	594.00	607.51	611.97	613.20	616.08	621.28	616.88	620.49	604.80	593.05
Primary metal industries	684.66	700.57	674.08	673.42	681.77	688.84	699.30	706.40	698.91	705.16	717.66	709.69	721.46	733.41	718.68
Blast furnaces and basic steel products	821.98	845.38	810.04	808.45	814.78	829.11	843.67	861.06	854.66	852.65	855.35	851.30	868.85	881.82	866.70
Fabricated metal products	552.44	568.01	555.52	555.52	557.19	562.46	566.25	569.36	558.18	571.05	568.90	572.40	579.44	590.98	575.61
Industrial machinery and equipment	619.32	633.42	619.92	619.71	623.50	626.67	630.89	631.08	628.42	635.46	635.09	642.11	646.43	663.55	649.99
Electronic and other electrical equipment	541.93	556.83	543.66	544.58	541.42	547.04	551.26	556.10	551.74	562.02	562.51	567.64	572.14	579.09	564.16
Transportation equipment	760.80	792.78	756.45	768.25	775.27	790.30	789.32	802.62	757.07	796.65	816.64	814.53	814.09	843.22	816.64
Motor vehicles and equipment	776.91	831.60	776.60	796.95	810.90	834.94	831.68	848.07	780.24	831.87	866.32	857.53	852.92	893.13	858.35
Instruments and related products	570.35	588.06	573.09	578.51	578.36	583.91	583.74	586.40	584.25	591.19	587.73	594.50	600.85	611.58	597.79
Miscellaneous manufacturing	434.51	452.07	435.24	442.33	447.60	448.88	451.13	450.87	444.88	453.60	454.96	461.09	459.49	467.43	448.89
Nondurable goods	521.88	538.65	527.39	525.29	529.02	532.76	536.20	539.15	538.05	540.38	547.35	548.05	551.86	557.86	544.97
Food and kindred products	492.06	505.78	495.51	489.50	490.32	497.28	503.78	505.86	507.87	506.15	513.20	513.04	518.50	521.52	504.69
Tobacco products	710.47	764.71	639.32	662.16	736.47	767.62	821.07	833.68	854.46	841.70	753.31	753.45	775.87	793.83	688.74
Textile mill products	425.99	438.04	432.64	426.12	427.99	436.81	437.22	441.16	434.83	440.59	438.75	444.88	449.28	452.69	442.95
Apparel and other textile products	317.80	331.36	318.56	322.65	328.37	332.01	333.02	338.71	326.71	333.00	331.57	338.92	337.65	342.76	335.17
Paper and allied products	673.13	694.70	684.26	675.10	684.85	690.19	688.90	695.13	690.15	693.53	712.63	706.06	707.67	714.71	698.86
Printing and publishing	515.14	528.31	514.98	515.36	520.37	523.11	522.12	520.37	525.78	530.69	539.24	539.24	543.59	550.68	535.91
Chemicals and allied products	739.58	751.64	737.87	734.44	735.30	737.43	744.29	746.05	746.82	754.68	769.87	763.73	770.35	780.08	761.41
Petroleum and coal products	912.11	924.93	931.56	927.92	943.48	917.62	896.73	909.02	924.46	906.95	931.82	936.58	938.69	946.11	917.96
Rubber and miscellaneous plastics products	494.98	513.33	503.45	503.42	509.96	511.21	511.60	513.28	506.35	510.05	517.09	514.59	519.98	529.60	522.91
Leather and leather products	350.43	365.31	353.79	355.63	359.08	363.46	367.30	367.49	359.41	377.12	367.78	370.59	373.92	374.22	371.01
TRANSPORTATION AND PUBLIC UTILITIES	604.75	606.43	602.56	606.84	601.79	601.00	603.34	606.84	609.17	617.40	607.53	605.18	607.82	610.12	611.33
WHOLESALE TRADE	539.90	560.26	547.96	550.75	547.79	554.58	560.86	554.50	558.72	566.96	564.16	570.51	569.09	573.65	578.27
RETAIL TRADE	253.17	263.32	252.90	256.83	257.40	259.16	262.77	265.19	268.80	270.30	264.38	264.96	264.33	271.32	264.32
FINANCE, INSURANCE, AND REAL ESTATE	511.78	528.88	521.28	528.17	523.08	524.50	535.81	520.55	525.99	539.11	526.68	529.95	530.28	533.95	554.63
SERVICES	418.91	436.19	429.59	432.90	431.89	431.57	436.22	431.30	432.96	439.90	435.40	442.76	444.72	445.97	451.91

[P] = preliminary.
NOTE: See "Notes on the data" for a description of the most recent benchmark revision. Dash indicates data not available.

17. Diffusion indexes of employment change, seasonally adjusted

[In percent]

Timespan and year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov	Dec.
	Private nonfarm payrolls, 356 industries											
Over 1-month span:												
1997	56.2	61.0	61.9	62.8	58.8	56.3	60.7	61.0	59.4	65.4	63.6	62.1
1998	63.8	57.9	58.8	60.5	55.9	57.9	58.0	55.8	54.6	52.9	59.1	58.6
1999	54.4	58.3	52.1	58.8	51.5	57.0	57.6	50.0	55.1	57.2	57.9	56.6
2000	57.0	–	–	–	–	–	–	–	–	–	–	–
Over 3-month span:												
1997	63.8	63.6	67.7	67.3	62.6	61.7	61.4	66.2	67.3	69.9	70.8	71.2
1998	66.7	66.2	64.5	63.9	61.4	58.7	60.0	58.4	57.6	57.6	59.0	60.4
1999	60.7	55.9	59.6	54.6	56.3	56.2	56.2	59.0	57.4	59.6	60.1	60.3
Over 6-month span:												
1997	67.4	68.3	65.6	67.0	65.6	64.9	66.3	68.4	69.7	71.3	71.3	71.9
1998	70.6	66.9	65.9	62.4	62.6	61.1	58.0	59.8	60.0	60.8	60.8	58.0
1999	61.1	58.8	57.3	59.0	55.2	57.4	56.9	61.5	61.4	58.4	–	–
Over 12-month span:												
1997	69.0	67.3	68.3	69.7	69.5	70.1	70.1	70.4	70.5	69.7	69.8	71.3
1998	70.4	68.3	67.1	64.0	62.1	61.7	61.8	63.8	59.8	59.0	59.3	58.6
1999	60.1	57.3	57.0	57.6	58.7	58.7	58.7	–	–	–	–	–
	Manufacturing payrolls, 139 industries											
Over 1-month span:												
1997	50.0	52.9	53.6	56.1	52.2	53.2	51.1	55.4	53.6	62.2	61.2	55.4
1998	58.6	51.8	50.4	50.4	40.6	46.8	40.3	45.3	42.1	36.3	39.9	45.0
1999	40.3	42.4	39.6	44.6	36.3	45.3	57.2	38.5	42.8	48.9	50.7	48.2
2000	52.2	–	–	–	–	–	–	–	–	–	–	–
Over 3-month span:												
1997	51.8	51.4	57.6	56.8	54.3	51.8	53.6	55.4	59.7	68.3	65.8	64.4
1998	59.4	57.9	51.8	44.2	41.7	34.9	37.4	37.1	38.1	34.2	35.6	35.3
1999	37.4	31.7	37.1	30.2	33.8	43.9	43.2	44.6	38.5	46.4	49.3	50.4
Over 6-month span:												
1997	54.7	54.0	51.4	54.3	52.5	52.2	55.4	61.2	61.5	64.7	66.2	65.1
1998	59.7	49.3	48.2	36.7	36.7	36.7	28.4	31.3	33.5	35.3	32.7	28.1
1999	33.1	29.1	28.1	36.0	30.9	34.5	36.3	44.6	45.3	40.6	–	–
Over 12-month span:												
1997	54.7	52.5	54.0	54.0	55.4	56.8	57.2	57.9	58.3	56.5	55.4	57.2
1998	54.0	49.3	46.0	40.6	35.6	33.8	30.9	32.0	26.6	26.6	25.5	26.3
1999	32.7	25.9	28.4	29.5	29.9	30.6	34.5	–	–	–	–	–

– Data not available.

NOTE: Figures are the percent of industries with employment increasing plus one-half of the industries with unchanged employment, where 50 percent indicates an equal balance between industries with increasing and decreasing employment. Data for the 2 most recent months shown in each span are preliminary. See the "Definitions" in this section. See "Notes on the data" for a description of the most recent benchmark revision.

18. Annual data: Employment status of the population

[Numbers in thousands]

Employment status	1991	1992	1993	1994	1995	1996	1997	1998	1999
Civilian noninstitutional population	190,925	192,805	194,838	196,814	198,584	200,591	203,133	205,220	207,753
Civilian labor force	126,346	128,105	129,200	131,056	132,304	133,943	136,297	137,673	139,368
Labor force participation rate	66.2	66.4	66.3	66.6	66.6	66.8	67.1	67.1	67.1
Employed	117,718	118,492	120,259	123,060	124,900	126,708	129,558	131,463	133,488
Employment-population ratio	61.7	61.5	61.7	62.5	62.9	63.2	63.8	64.1	64.3
Agriculture	3,269	3,247	3,115	3,409	3,440	3,443	3,399	3,378	3,281
Nonagricultural industries	114,499	115,245	117,144	119,651	121,460	123,264	126,159	128,085	130,207
Unemployed	8,628	9,613	8,940	7,996	7,404	7,236	6,739	6,210	5,880
Unemployment rate	6.8	7.5	6.9	6.1	5.6	5.4	4.9	4.5	4.2
Not in the labor force	64,578	64,700	65,638	65,758	66,280	66,647	66,837	67,547	68,385

19. Annual data: Employment levels by industry

[In thousands]

Industry	1991	1992	1993	1994	1995	1996	1997	1998	1999[p]
Total employment	108,249	108,601	110,713	114,163	117,191	119,608	122,690	125,826	128,616
Private sector	89,847	89,956	91,872	95,036	97,885	100,189	103,133	106,007	108,455
Goods-producing	23,745	23,231	23,352	23,908	24,265	24,493	24,962	25,347	25,240
Mining	689	635	610	601	581	580	596	590	535
Construction	4,650	4,492	4,668	4,986	5,160	5,418	5,691	5,985	6,273
Manufacturing	18,406	18,104	18,075	18,321	18,524	18,495	18,675	18,772	18,431
Service-producing	84,504	85,370	87,361	90,256	92,925	95,115	97,727	100,480	103,376
Transportation and public utilities	5,755	5,718	5,811	5,984	6,132	6,253	6,408	6,600	6,792
Wholesale trade	6,081	5,997	5,981	6,162	6,378	6,482	6,648	6,831	7,004
Retail trade	19,284	19,356	19,773	20,507	21,187	21,597	21,966	22,296	22,788
Finance, insurance, and real estate	6,646	6,602	6,757	6,896	6,806	6,911	7,109	7,407	7,632
Services	28,336	29,052	30,197	31,579	33,117	34,454	36,040	37,526	39,000
Government	18,402	18,645	18,841	19,128	19,305	19,419	19,557	19,819	20,161
Federal	2,966	2,969	2,915	2,870	2,822	2,757	2,699	2,686	2,668
State	4,355	4,408	4,488	4,576	4,635	4,606	4,582	4,612	4,696
Local	11,081	11,267	11,438	11,682	11,849	12,056	12,276	12,521	12,797

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

20. Annual data: Average hours and earnings of production or nonsupervisory workers on nonfarm payrolls, by industry

Industry	1991	1992	1993	1994	1995	1996	1997	1998	1999[p]
Private sector:									
Average weekly hours	34.3	34.4	34.5	34.7	34.5	34.4	34.6	34.6	34.5
Average hourly earnings (in dollars)	10.32	10.57	10.83	11.12	11.43	11.82	12.28	12.78	13.24
Average weekly earnings (in dollars)	353.98	363.61	373.64	385.86	394.34	406.61	424.89	442.19	456.78
Mining:									
Average weekly hours	44.4	43.9	44.3	44.8	44.7	45.3	45.4	43.9	43.9
Average hourly earnings (in dollars)	14.19	14.54	14.60	14.88	15.30	15.62	16.15	16.90	17.04
Average weekly earnings (in dollars)	630.04	638.31	646.78	666.62	683.91	707.59	733.21	741.91	748.06
Construction:									
Average weekly hours	38.1	38.0	38.5	38.9	38.9	39.0	39.0	38.8	39.0
Average hourly earnings (in dollars)	14.00	14.15	14.38	14.73	15.09	15.47	16.04	16.59	17.13
Average weekly earnings (in dollars)	533.40	537.70	553.63	573.00	587.00	603.33	625.56	643.69	668.07
Manufacturing:									
Average weekly hours	40.7	41.0	41.4	42.0	41.6	41.6	42.0	41.7	41.7
Average hourly earnings (in dollars)	11.18	11.46	11.74	12.07	12.37	12.77	13.17	13.49	13.91
Average weekly earnings (in dollars)	455.03	469.86	486.04	506.94	514.59	531.23	553.14	562.53	580.05
Transportation and public utilities:									
Average weekly hours	38.1	38.3	39.3	39.7	39.4	39.6	39.7	39.5	38.7
Average hourly earnings (in dollars)	13.20	13.43	13.55	13.78	14.13	14.45	14.92	15.31	15.67
Average weekly earnings (in dollars)	502.92	514.37	532.52	547.07	556.72	572.22	592.32	604.75	606.43
Wholesale trade:									
Average weekly hours	38.1	38.2	38.2	38.4	38.3	38.3	38.4	38.4	38.4
Average hourly earnings (in dollars)	11.15	11.39	11.74	12.06	12.43	12.87	13.45	14.06	14.59
Average weekly earnings (in dollars)	424.82	435.10	448.47	463.10	476.07	492.92	516.48	539.90	560.26
Retail trade:									
Average weekly hours	28.6	28.8	28.8	28.9	28.8	28.8	28.9	29.0	29.0
Average hourly earnings (in dollars)	6.94	7.12	7.29	7.49	7.69	7.99	8.33	8.73	9.08
Average weekly earnings (in dollars)	198.48	205.06	209.95	216.46	221.47	230.11	240.74	253.17	263.32
Finance, insurance, and real estate:									
Average weekly hours	35.7	35.8	35.8	35.8	35.9	35.9	36.1	36.4	36.2
Average hourly earnings (in dollars)	10.39	10.82	11.35	11.83	12.32	12.80	13.34	14.06	14.61
Average weekly earnings (in dollars)	370.92	387.36	406.33	423.51	442.29	459.52	481.57	511.78	528.88
Services:									
Average weekly hours	32.4	32.5	32.5	32.5	32.4	32.4	32.6	32.6	32.6
Average hourly earnings (in dollars)	10.23	10.54	10.78	11.04	11.39	11.79	12.28	12.85	13.38
Average weekly earnings (in dollars)	331.45	342.55	350.35	358.80	369.04	382.00	400.33	418.91	436.19

21. Employment Cost Index, compensation,[1] by occupation and industry group

[June 1989 = 100]

Series	1997	1998				1999				Percent change	
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	3 months ended	12 months ended
										Dec. 1999	
Civilian workers[2]	135.2	136.3	137.4	139.0	139.8	140.4	141.8	143.3	144.6	0.9	3.4
Workers, by occupational group:											
White-collar workers	136.5	137.7	138.7	140.6	141.4	141.9	143.3	145.0	146.3	.9	3.5
Professional specialty and technical	136.7	137.5	138.3	140.0	141.0	141.3	142.2	143.9	145.3	1.0	3.0
Executive, administrative, and managerial	137.3	139.1	139.7	141.7	141.8	143.5	145.4	147.3	148.6	.9	4.8
Administrative support, including clerical	136.9	138.0	139.3	140.4	141.3	142.5	143.4	144.7	146.1	1.0	3.4
Blue-collar workers	132.4	133.2	134.3	135.3	136.1	137.1	138.3	139.5	140.6	.8	3.3
Service occupations	135.6	136.9	137.9	139.4	140.0	141.3	142.4	143.1	144.8	1.2	3.4
Workers, by industry division:											
Goods-producing	134.1	135.1	136.3	137.2	137.9	139.0	140.0	141.2	142.5	.9	3.3
Manufacturing	135.3	136.4	137.2	138.2	138.9	139.9	140.9	142.1	143.6	1.1	3.4
Service-producing	135.5	136.8	137.7	139.6	140.4	140.9	142.4	144.0	145.3	.9	3.5
Services	137.6	138.3	139.0	140.8	141.7	142.3	143.2	145.1	146.5	1.0	3.4
Health services	137.9	138.0	138.5	139.1	139.1	140.5	141.4	142.7	144.3	1.1	3.7
Hospitals	136.7	137.1	138.2	139.4	140.2	141.3	142.2	143.4	145.0	1.1	3.4
Educational services	137.0	137.5	137.7	140.2	141.0	141.3	141.7	144.6	145.8	.8	3.4
Public administration[3]	135.1	136.4	137.4	138.9	139.9	140.8	141.5	142.4	144.4	1.4	3.2
Nonmanufacturing	135.1	136.2	137.3	139.0	139.9	140.5	141.9	143.4	144.7	.9	3.4
Private industry workers	135.1	136.3	137.5	139.0	139.8	140.4	142.0	143.3	144.6	.9	3.4
Excluding sales occupations	135.2	136.4	137.5	138.8	139.4	140.5	141.9	143.2	144.5	.9	3.7
Workers, by occupational group:											
White-collar workers	136.7	138.1	139.4	141.1	142.0	142.4	144.1	145.6	146.9	.9	3.5
Excluding sales occupations	137.4	138.8	139.9	141.3	141.9	143.0	144.5	146.0	147.3	.9	3.8
Professional specialty and technical occupations	137.8	138.8	140.1	141.6	142.6	142.9	144.1	145.2	146.7	1.0	2.9
Executive, administrative, and managerial occupations	137.4	139.4	140.0	141.9	141.8	143.7	145.8	147.7	149.1	.9	5.1
Sales occupations	133.5	135.3	137.3	140.4	142.6	139.6	142.6	144.1	145.3	.8	1.9
Administrative support occupations, including clerical	137.0	138.2	139.6	140.6	141.4	142.6	143.7	145.0	146.2	.8	3.4
Blue-collar workers	132.3	133.1	134.3	135.2	135.9	136.9	138.2	139.4	140.5	.8	3.3
Precision production, craft, and repair occupations	131.9	132.9	134.4	135.4	136.1	137.2	138.4	139.6	140.6	.7	3.3
Machine operators, assemblers, and inspectors	133.0	133.6	134.7	135.7	136.8	137.3	138.4	139.9	141.4	1.1	3.4
Transportation and material moving occupations	128.9	129.3	129.9	130.7	130.7	131.6	133.6	134.4	135.2	.6	3.4
Handlers, equipment cleaners, helpers, and laborers	135.8	137.0	137.6	138.5	139.2	141.0	142.3	143.2	144.4	.8	3.7
Service occupations	134.1	135.3	136.0	137.3	138.0	139.5	140.6	141.0	142.6	1.1	3.3
Production and nonsupervisory occupations[4]	134.2	135.3	136.6	138.0	139.0	139.3	140.8	141.9	143.1	.8	2.9
Workers, by industry division:											
Goods-producing	134.1	135.1	136.2	137.1	137.8	138.9	139.9	141.1	142.5	1.0	3.4
Excluding sales occupations	133.6	134.5	135.6	136.5	137.2	138.3	139.3	140.5	141.8	.9	3.3
White-collar occupations	136.2	137.7	138.8	139.7	140.2	141.7	142.7	143.9	145.5	1.1	3.7
Excluding sales occupations	135.0	136.3	137.4	138.3	138.8	140.4	141.3	142.5	143.9	1.0	3.7
Blue-collar occupations	132.8	133.5	134.6	135.5	136.3	137.1	138.3	139.4	140.7	.9	3.2
Construction	129.7	130.6	132.7	133.4	134.3	135.6	136.9	137.9	138.7	.6	3.3
Manufacturing	135.3	136.4	137.2	138.2	138.9	139.9	140.9	142.1	143.6	1.1	3.4
White-collar occupations	136.7	138.2	139.1	140.1	140.5	141.8	143.0	144.3	145.8	1.0	3.8
Excluding sales occupations	135.3	136.5	137.3	138.3	138.7	140.1	141.3	142.5	143.8	.9	3.7
Blue-collar occupations	134.3	135.0	135.9	136.8	137.7	138.5	139.4	140.5	142.1	1.1	3.2
Durables	135.7	136.5	137.4	138.5	139.2	139.9	141.0	142.3	144.0	1.2	3.4
Nondurables	134.5	135.9	136.7	137.6	138.2	139.6	140.4	141.5	142.8	.9	3.3
Service-producing	135.3	136.7	137.8	139.6	140.5	140.9	142.8	144.1	145.3	.8	3.4
Excluding sales occupations	136.1	137.4	138.5	140.0	140.6	141.7	143.3	144.6	145.9	.9	3.8
White-collar occupations	136.6	138.0	139.3	141.2	142.2	142.3	144.3	145.8	147.0	.8	3.4
Excluding sales occupations	138.1	139.5	140.6	142.2	142.8	143.8	145.5	147.0	148.3	.9	3.9
Blue-collar occupations	130.9	132.1	133.2	134.3	134.8	136.2	137.8	139.1	139.8	.5	3.7
Service occupations	133.9	135.0	135.8	137.0	137.8	139.3	140.5	140.8	142.4	1.1	3.3
Transportation and public utilities	134.2	135.8	137.1	138.5	139.3	139.7	140.9	141.8	142.3	.4	2.2
Transportation	133.4	134.0	134.9	136.7	137.3	136.8	138.1	138.7	139.5	.6	1.6
Public utilities	135.1	137.9	139.7	140.7	141.9	143.4	144.6	145.7	146.1	.3	3.0
Communications	134.0	136.6	139.2	140.5	141.7	143.3	144.9	146.1	146.0	–.1	3.0
Electric, gas, and sanitary services	136.4	139.6	140.3	141.0	142.1	143.4	144.2	145.1	146.1	.7	2.8
Wholesale and retail trade	132.9	134.7	135.8	137.6	138.2	138.9	141.1	142.2	143.5	.9	3.8
Excluding sales occupations	134.0	135.5	136.3	138.1	138.8	139.9	141.9	142.8	144.3	1.1	4.0
Wholesale trade	135.1	137.7	138.6	140.8	142.8	142.7	144.6	146.3	148.5	1.5	4.0
Excluding sales occupations	135.4	137.0	138.2	140.0	141.2	142.4	144.0	145.8	147.4	1.1	4.4
Retail trade	131.7	133.1	134.4	135.9	135.6	136.8	139.1	140.0	140.7	.5	3.8
General merchandise stores	130.0	131.2	133.0	133.2	134.0	135.0	135.6	137.2	138.3	.8	3.2
Food stores	129.4	131.3	132.9	133.7	132.7	134.3	135.7	137.0	138.1	.8	4.1

See footnotes at end of table.

21. Continued—Employment Cost Index, compensation,[1] by occupation and industry group

[June 1989 = 100]

Series	1997	1998				1999				Percent change	
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	3 months ended	12 months ended
										Dec. 1999	
Finance, insurance, and real estate	134.5	136.7	138.4	141.0	142.5	141.5	145.8	147.6	148.3	0.5	4.1
Excluding sales occupations	137.6	140.2	141.3	143.2	143.3	145.6	148.8	151.0	151.6	.4	5.8
Banking, savings and loan, and other credit agencies	140.6	143.3	145.3	148.4	146.7	148.8	155.4	159.3	159.8	.3	8.9
Insurance	134.8	137.4	138.9	141.9	141.7	141.7	144.0	144.5	145.8	.9	2.9
Services	138.5	139.3	140.3	141.8	142.7	143.5	144.6	146.1	147.6	1.0	3.4
Business services	138.6	139.5	140.7	143.5	145.9	147.5	148.7	150.7	151.9	.8	4.1
Health services	138.1	138.2	138.7	139.0	139.0	140.5	141.4	142.6	144.2	1.1	3.7
Hospitals	136.5	136.7	138.2	139.1	139.9	141.2	142.1	143.0	144.6	1.1	3.4
Educational services	142.6	143.4	143.9	147.0	147.7	148.3	148.7	152.2	153.0	.5	3.6
Colleges and universities	143.7	144.3	144.8	147.8	148.5	149.2	149.6	152.6	153.3	.5	3.2
Nonmanufacturing	134.7	136.0	137.2	138.9	139.7	140.3	142.0	143.4	144.5	.8	3.4
White-collar workers	136.5	137.9	139.2	141.1	142.0	142.3	144.1	145.6	146.9	.9	3.5
Excluding sales occupations	137.9	139.3	140.5	142.0	142.7	143.7	145.3	146.8	148.1	.9	3.8
Blue-collar occupations	130.1	131.0	132.4	133.4	134.0	135.2	136.8	138.0	138.7	.5	3.5
Service occupations	133.8	134.9	135.7	136.9	137.7	139.2	140.4	140.7	142.3	1.1	3.3
State and local government workers	135.7	136.5	136.9	139.0	139.8	140.5	141.0	143.1	144.6	1.0	3.4
Workers, by occupational group:											
White-collar workers	135.5	136.1	136.2	138.4	139.3	139.8	140.2	142.6	144.0	1.0	3.4
Professional specialty and technical	135.1	135.6	135.6	137.7	138.5	138.8	139.3	142.0	143.2	.8	3.4
Executive, administrative, and managerial	136.4	137.5	137.9	140.4	141.6	142.6	142.8	144.5	146.1	1.1	3.2
Administrative support, including clerical	136.1	136.9	137.2	139.5	140.3	141.4	141.3	143.0	145.0	1.4	3.4
Blue-collar workers	134.2	135.0	135.2	136.8	137.8	138.8	139.5	140.9	142.5	1.1	3.4
Workers, by industry division:											
Services	136.0	136.5	136.6	139.0	139.7	140.0	140.5	143.2	144.5	.9	3.4
Services excluding schools[5]	135.3	136.1	136.2	138.7	138.8	139.6	140.3	142.6	143.8	.8	3.6
Health services	137.2	137.9	138.0	140.3	140.7	141.2	142.0	144.2	145.8	1.1	3.6
Hospitals	137.6	138.4	138.4	140.7	141.2	141.7	142.7	144.8	146.3	1.0	3.6
Educational services	135.9	136.3	136.5	138.8	139.6	139.9	140.3	143.1	144.4	.9	3.4
Schools	136.2	136.6	136.7	139.1	139.9	140.2	140.6	143.5	144.7	.8	3.4
Elementary and secondary	135.8	136.1	136.2	138.8	139.3	139.6	140.0	142.9	144.1	.8	3.4
Colleges and universities	137.2	137.9	138.1	140.4	141.5	141.7	142.1	144.8	146.5	1.2	3.5
Public administration[3]	135.1	136.4	137.4	138.9	139.9	140.8	141.5	142.4	144.4	1.4	3.2

[1] Cost (cents per hour worked) measured in the Employment Cost Index consists of wages, salaries, and employer cost of employee benefits.

[2] Consists of private industry workers (excluding farm and household workers) and State and local government (excluding Federal Government) workers.

[3] Consists of legislative, judicial, administrative, and regulatory activities.

[4] This series has the same industry and occupational coverage as the Hourly Earnings index, which was discontinued in January 1989.

[5] Includes, for example, library, social, and health services.

22. Employment Cost Index, wages and salaries, by occupation and industry group

[June 1989 = 100]

Series	1997	1998				1999				Percent change	
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	3 months ended Dec. 1999	12 months ended Dec. 1999
Civilian workers[1]	132.8	134.0	135.0	136.8	137.7	138.4	139.8	141.3	142.5	0.8	3.5
Workers, by occupational group:											
White-collar workers	134.3	135.6	136.7	138.8	139.7	140.1	141.6	143.3	144.6	.9	3.5
Professional specialty and technical	135.0	135.8	136.6	138.5	139.4	140.1	141.0	142.6	144.0	1.0	3.3
Executive, administrative, and managerial	135.6	137.4	138.3	140.5	140.3	141.6	143.8	145.9	147.2	.9	4.9
Administrative support, including clerical	133.7	135.0	136.2	137.5	138.6	140.0	140.9	142.3	143.5	.8	3.5
Blue-collar workers	129.3	130.4	131.4	132.6	133.3	134.5	135.8	137.0	137.9	.7	3.5
Service occupations	132.6	133.7	134.5	136.1	137.0	138.3	139.4	140.1	141.7	1.1	3.4
Workers, by industry division:											
Goods-producing	130.6	132.0	133.3	134.4	135.2	136.3	137.4	138.6	139.7	.8	3.3
Manufacturing	132.2	133.7	134.6	136.0	136.8	137.9	139.0	140.2	141.5	.9	3.4
Service-producing	133.6	134.8	135.7	137.8	138.7	139.2	140.7	142.3	143.5	.8	3.5
Services	136.0	136.9	137.6	139.6	140.5	141.5	142.3	144.1	145.5	1.0	3.6
Health services	135.4	136.2	136.5	137.6	137.6	138.8	139.7	140.9	142.5	1.1	3.6
Hospitals	133.6	134.2	135.1	136.4	137.1	138.1	138.8	140.1	141.6	1.1	3.3
Educational services	135.9	136.3	136.5	139.1	140.0	140.2	140.6	143.7	144.7	.7	3.4
Public administration[2]	131.4	132.7	133.2	134.8	135.9	136.9	137.8	139.5	141.5	1.4	4.1
Nonmanufacturing	132.8	134.0	135.1	137.0	137.8	138.4	139.9	141.5	142.6	.8	3.5
Private industry workers	132.3	133.7	134.9	136.6	137.4	138.1	139.7	141.0	142.2	.9	3.5
Excluding sales occupations	132.4	133.7	134.8	136.3	136.9	138.2	139.6	140.8	142.0	.9	3.7
Workers, by occupational group:											
White-collar workers	134.2	135.7	137.0	139.0	139.9	140.3	142.1	143.5	144.8	.9	3.5
Excluding sales occupations	134.8	136.3	137.5	139.1	139.7	141.0	142.5	143.9	145.2	.9	3.9
Professional specialty and technical occupations	134.8	135.9	137.1	138.7	139.7	140.7	141.8	142.6	144.1	1.1	3.1
Executive, administrative, and managerial occupations	135.8	137.8	138.7	140.9	140.5	141.9	144.3	146.4	147.6	.8	5.1
Sales occupations	131.4	133.1	135.2	138.8	141.3	137.3	140.5	142.1	143.3	.8	1.4
Administrative support occupations, including clerical	133.9	135.3	136.7	137.9	138.9	140.4	141.4	142.7	143.8	.8	3.5
Blue-collar workers	129.1	130.2	131.3	132.4	133.2	134.3	135.6	136.8	137.7	.7	3.4
Precision production, craft, and repair occupations	128.7	129.8	131.2	132.3	133.0	134.3	135.6	136.7	137.5	.6	3.4
Machine operators, assemblers, and inspectors	130.6	131.6	132.7	133.8	134.9	135.7	136.7	138.3	139.5	.9	3.4
Transportation and material moving occupations	125.1	125.9	126.4	127.6	127.8	129.1	131.0	131.9	132.7	.6	3.8
Handlers, equipment cleaners, helpers, and laborers	131.8	133.2	133.7	135.1	135.8	137.3	138.3	139.4	140.4	.7	3.4
Service occupations	131.1	132.1	133.0	134.4	135.3	136.7	137.8	138.0	139.6	1.2	3.2
Production and nonsupervisory occupations[3]	131.2	132.3	133.6	135.2	136.4	136.8	138.2	139.3	140.4	.8	2.9
Workers, by industry division:											
Goods-producing	130.6	132.0	133.2	134.3	135.2	136.3	137.3	138.5	139.7	.9	3.3
Excluding sales occupations	130.0	131.3	132.5	133.6	134.4	135.5	136.6	137.8	138.9	.8	3.3
White-collar occupations	132.9	135.0	136.3	137.4	138.2	139.4	140.5	141.7	143.0	.9	3.5
Excluding sales occupations	131.6	133.3	134.6	135.7	136.4	137.8	138.8	140.1	141.3	.9	3.6
Blue-collar occupations	129.2	130.1	131.3	132.3	133.3	134.3	135.4	136.6	137.6	.7	3.2
Construction	124.9	126.0	128.1	128.5	129.3	130.7	131.9	133.0	133.6	.5	3.3
Manufacturing	132.2	133.7	134.6	136.0	136.8	137.9	139.0	140.2	141.5	.9	3.4
White-collar occupations	133.6	135.6	136.8	138.3	139.0	140.1	141.4	142.7	144.0	.9	3.6
Excluding sales occupations	132.2	133.8	135.0	136.3	137.1	138.3	139.6	140.8	142.0	.9	3.6
Blue-collar occupations	131.2	132.3	133.1	134.3	135.3	136.3	137.2	138.4	139.7	.9	3.3
Durables	131.9	133.4	134.5	135.9	136.9	137.9	139.1	140.4	141.8	1.0	3.6
Nondurables	132.6	134.2	134.9	136.0	136.8	138.0	138.7	139.7	140.9	.9	3.0
Service-producing	133.1	134.4	135.6	137.6	138.4	138.9	140.8	142.1	143.3	.8	3.5
Excluding sales occupations	133.9	135.2	136.2	137.9	138.5	139.8	141.4	142.6	143.8	.8	3.8
White-collar occupations	134.3	135.7	137.0	139.2	140.1	140.3	142.3	143.8	145.0	.8	3.5
Excluding sales occupations	135.9	137.3	138.4	140.2	140.7	142.0	143.7	145.1	146.4	.9	4.1
Blue-collar occupations	128.9	130.2	131.1	132.4	132.9	134.4	135.9	137.0	137.8	.6	3.7
Service occupations	131.0	132.1	133.0	134.2	135.2	136.7	137.8	138.0	139.6	1.2	3.3
Transportation and public utilities	131.3	132.1	132.8	134.3	135.1	135.4	136.8	137.5	137.9	.3	2.1
Transportation	129.5	130.1	130.4	132.4	132.9	132.3	133.7	134.4	134.9	.4	1.5
Public utilities	133.5	134.5	135.7	136.5	137.8	139.2	140.6	141.5	141.8	.2	2.9
Communications	134.0	134.4	135.8	136.7	138.0	139.4	141.1	141.9	142.2	.2	3.0
Electric, gas, and sanitary services	132.9	134.7	135.6	136.3	137.4	138.9	140.0	140.9	141.3	.3	2.8
Wholesale and retail trade	131.6	133.3	134.6	136.6	137.0	137.7	139.6	140.7	142.0	.9	3.6
Excluding sales occupations	133.2	134.7	135.6	137.6	138.2	139.5	141.1	141.8	143.3	1.1	3.7
Wholesale trade	133.6	136.2	137.1	139.3	141.3	140.7	142.3	144.3	146.5	1.5	3.7
Excluding sales occupations	135.0	136.5	137.8	139.6	140.8	141.9	143.0	144.8	146.4	1.1	4.0
Retail trade	130.6	131.9	133.3	135.2	134.8	136.2	138.3	138.9	139.6	.5	3.6
General merchandise stores	128.4	129.4	131.5	132.2	133.0	133.7	134.3	135.6	136.7	.8	2.8
Food stores	127.0	129.0	130.5	131.7	130.5	131.8	132.8	133.9	134.9	.7	3.4

See footnotes at end of table.

22. Continued—Employment Cost Index, wages and salaries, by occupation and industry group

[June 1989 = 100]

Series	1997	1998				1999				Percent change	
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	3 months ended	12 months ended
										Dec. 1999	
Finance, insurance, and real estate	130.6	132.6	134.8	138.1	139.8	137.2	142.4	144.5	145.2	0.5	3.9
Excluding sales occupations	133.6	135.9	137.5	139.7	139.6	141.0	144.8	147.5	148.0	.3	6.0
Banking, savings and loan, and other credit agencies	138.3	140.9	143.2	147.0	144.4	146.1	154.5	159.2	159.6	.3	10.5
Insurance	130.2	133.1	134.8	138.7	138.5	137.4	139.8	140.2	141.5	.9	2.2
Services	136.2	137.2	138.3	140.0	140.8	142.2	143.2	144.5	146.0	1.0	3.7
Business services	137.3	137.6	139.2	141.8	144.1	145.4	146.3	148.5	149.8	.9	4.0
Health services	135.4	136.2	136.5	137.5	137.4	138.7	139.6	140.6	142.2	1.1	3.5
Hospitals	133.2	133.6	134.7	135.8	136.5	137.6	138.3	139.3	140.9	1.1	3.2
Educational services	138.4	139.1	139.6	142.8	143.5	143.9	144.2	147.5	148.2	.5	3.3
Colleges and universities	138.7	139.1	139.7	142.8	143.6	144.1	144.4	147.2	147.9	.5	3.0
Nonmanufacturing	132.1	133.4	134.7	136.5	137.4	137.9	139.7	141.0	142.1	.8	3.4
White-collar workers	134.1	135.5	136.8	138.9	139.8	140.1	142.0	143.5	144.7	.8	3.5
Excluding sales occupations	135.5	136.9	138.1	139.8	140.3	141.6	143.2	144.6	145.9	.9	4.0
Blue-collar occupations	127.1	128.2	129.5	130.5	131.1	132.4	134.0	135.1	135.8	.5	3.6
Service occupations	130.9	132.0	132.9	134.1	135.1	136.5	137.7	137.9	139.5	1.2	3.3
State and local government workers	134.4	135.1	135.4	137.6	138.5	139.0	139.6	142.2	143.5	.9	3.6
Workers, by occupational group:											
White-collar workers	134.5	135.0	135.2	137.6	138.5	138.9	139.3	142.1	143.4	.9	3.5
Professional specialty and technical	135.1	135.5	135.6	137.9	138.7	138.9	139.4	142.5	143.6	.8	3.5
Executive, administrative, and managerial	134.1	135.1	135.6	138.0	139.3	140.1	140.5	142.7	144.3	1.1	3.6
Administrative support, including clerical	132.3	133.0	133.3	135.4	136.5	137.4	137.5	139.6	141.7	1.5	3.8
Blue-collar workers	132.3	133.1	133.5	135.1	136.0	136.9	137.6	139.4	140.7	.9	3.5
Workers, by industry division:											
Services	135.3	135.7	135.9	138.4	139.2	139.5	139.9	142.9	144.0	.8	3.4
Services excluding schools[4]	134.4	135.4	135.5	137.8	138.2	139.0	139.6	142.1	143.2	.8	3.6
Health services	135.3	136.3	136.5	138.7	139.2	139.7	140.4	142.8	144.2	1.0	3.6
Hospitals	135.2	136.3	136.5	138.6	139.1	139.7	140.6	142.8	144.1	.9	3.6
Educational services	135.3	135.7	135.8	138.4	139.3	139.5	139.8	142.9	144.0	.8	3.4
Schools	135.5	135.8	136.0	138.5	139.5	139.6	140.0	143.1	144.2	.8	3.4
Elementary and secondary	135.7	136.0	136.1	138.7	139.3	139.5	139.9	143.1	144.1	.7	3.4
Colleges and universities	134.6	135.2	135.5	137.7	139.6	139.6	139.8	142.6	144.4	1.3	3.4
Public administration[2]	131.4	132.7	133.2	134.8	135.9	136.9	137.8	139.5	141.5	1.4	4.1

[1] Consists of private industry workers (excluding farm and household workers) and State and local government (excluding Federal Government) workers.

[2] Consists of legislative, judicial, administrative, and regulatory activities.

[3] This series has the same industry and occupational coverage as the Hourly Earnings index, which was discontinued in January 1989.

[4] Includes, for example, library, social, and health services.

23. Employment Cost Index, benefits, private industry workers by occupation and industry group

[June 1989 = 100]

Series	1997	1998				1999				Percent change	
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	3 months ended	12 months ended
										Dec. 1999	
Private industry workers	141.8	142.6	143.7	144.5	145.2	145.8	147.3	148.6	150.2	1.1	3.4
Workers, by occupational group:											
White-collar workers	143.4	144.7	145.6	146.6	147.4	147.9	149.4	151.0	152.5	1.0	3.5
Blue-collar workers	139.0	139.1	140.4	141.0	141.6	142.2	143.6	144.8	146.2	1.0	3.2
Workers, by industry division:											
Goods-producing	141.5	141.5	142.5	143.0	143.2	144.3	145.2	146.3	148.2	1.3	3.4
Service-producing	141.4	142.7	143.8	144.9	145.7	146.1	147.9	149.4	150.7	.9	3.4
Manufacturing	141.7	141.7	142.4	142.6	142.7	143.6	144.5	145.7	147.8	1.4	3.4
Nonmanufacturing	141.5	142.7	143.9	145.0	145.8	146.3	148.0	149.4	150.7	.9	3.4

24. Employment Cost Index, private nonfarm workers by bargaining status, region, and area size

[June 1989 = 100]

Series	1997	1998				1999				Percent change	
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	3 months ended Dec. 1999	12 months ended Dec. 1999
COMPENSATION											
Workers, by bargaining status[1]											
Union	133.5	134.0	135.3	136.8	137.5	138.0	139.0	140.2	141.2	0.7	2.7
Goods-producing	132.5	132.7	134.3	135.6	136.5	136.8	138.2	139.2	140.8	1.1	3.2
Service-producing	134.5	135.3	136.2	138.0	138.5	139.2	139.7	141.0	141.4	.3	2.1
Manufacturing	133.3	133.6	134.6	136.0	136.9	137.0	138.1	139.1	141.0	1.4	3.0
Nonmanufacturing	133.2	133.9	135.3	136.9	137.4	138.1	139.2	140.3	140.8	.4	2.5
Nonunion	135.3	136.7	137.8	139.3	140.1	140.8	142.5	143.8	145.2	1.0	3.6
Goods-producing	134.7	135.9	136.9	137.7	138.3	139.7	140.5	141.8	143.1	.9	3.5
Service-producing	135.3	136.7	138.0	139.7	140.6	141.1	143.0	144.4	145.7	.9	3.6
Manufacturing	135.9	137.2	138.0	138.9	139.4	140.7	141.7	143.0	144.4	1.0	3.5
Nonmanufacturing	134.9	136.3	137.5	139.1	140.0	140.6	142.4	143.8	145.1	.9	3.6
Workers, by region[1]											
Northeast	135.0	136.0	137.0	138.7	139.5	140.5	141.5	143.2	144.3	.8	3.4
South	134.6	135.5	136.4	137.6	138.1	139.1	140.7	141.8	143.0	.8	3.5
Midwest (formerly North Central)	136.9	138.3	139.6	140.9	141.4	141.7	143.6	145.0	146.3	.9	3.5
West	133.4	135.2	136.6	138.5	140.0	140.3	142.1	143.3	144.7	1.0	3.4
Workers, by area size[1]											
Metropolitan areas	135.1	136.4	137.5	139.1	139.8	140.4	142.0	143.3	144.7	1.0	3.5
Other areas	135.3	135.9	137.1	138.2	139.4	140.5	141.8	143.1	143.6	.3	3.0
WAGES AND SALARIES											
Workers, by bargaining status[1]											
Union	128.9	129.6	130.7	132.4	133.1	133.6	134.7	135.7	136.5	.6	2.6
Goods-producing	127.1	127.9	129.4	131.0	131.7	132.3	133.8	134.9	136.1	.9	3.3
Service-producing	131.2	131.8	132.2	134.1	134.8	135.4	135.8	136.8	137.2	.3	1.8
Manufacturing	128.6	129.6	130.4	132.2	133.0	133.6	134.7	135.8	137.5	1.3	3.4
Nonmanufacturing	129.1	129.6	130.8	132.4	133.1	133.7	134.6	135.6	135.9	.2	2.1
Nonunion	133.0	134.5	135.7	137.4	138.3	139.0	140.7	142.0	143.3	.9	3.6
Goods-producing	132.0	133.6	134.7	135.7	136.5	137.8	138.8	140.0	141.1	.8	3.4
Service-producing	133.2	134.6	135.9	137.9	138.8	139.3	141.3	142.6	143.9	.9	3.7
Manufacturing	133.5	135.1	136.2	137.3	138.2	139.4	140.5	141.7	142.9	.8	3.4
Nonmanufacturing	132.6	134.0	135.3	137.1	138.0	138.6	140.5	141.8	143.0	.8	3.6
Workers, by region[1]											
Northeast	131.6	132.6	133.8	135.4	136.4	137.1	138.2	139.9	140.9	.7	3.3
South	133.0	134.0	134.9	136.5	136.7	137.9	139.4	140.2	141.5	.9	3.5
Midwest (formerly North Central)	133.0	134.7	136.0	137.5	138.0	138.9	141.0	142.4	143.6	.8	4.1
West	131.2	132.9	134.5	136.7	138.4	138.2	140.2	141.3	142.6	.9	3.0
Workers, by area size[1]											
Metropolitan areas	132.3	133.8	135.1	136.9	137.7	138.3	139.9	141.2	142.5	.9	3.5
Other areas	132.0	132.5	133.4	134.7	136.0	137.1	138.4	139.8	140.2	.3	3.1

[1] The indexes are calculated differently from those for the occupation and industry groups. For a detailed description of the index calculation, see the *Monthly Labor Review* Technical Note, "Estimation procedures for the Employment Cost Index," May 1982.

25. Percent of full-time employees participating in employer-provided benefit plans, and in selected features within plans, medium and large private establishments, selected years, 1980–97

Item	1980	1982	1984	1986	1988	1989	1991	1993	1995	1997
Scope of survey (in 000's)	21,352	21,043	21,013	21,303	31,059	32,428	31,163	28,728	33,374	38,409
Number of employees (in 000's):										
With medical care	20,711	20,412	20,383	20,238	27,953	29,834	25,865	23,519	25,546	29,340
With life insurance	20,498	20,201	20,172	20,451	28,574	30,482	29,293	26,175	29,078	33,495
With defined benefit plan	17,936	17,676	17,231	16,190	19,567	20,430	18,386	16,015	17,417	19,202
Time-off plans										
Participants with:										
Paid lunch time	10	9	9	10	11	10	8	9	–	–
Average minutes per day	–	25	26	27	29	26	30	29	–	–
Paid rest time	75	76	73	72	72	71	67	68	–	–
Average minutes per day	–	25	26	26	26	26	28	26	–	–
Paid funeral leave	–	–	–	88	85	84	80	83	80	81
Average days per occurrence	–	–	–	3.2	3.2	3.3	3.3	3.0	3.3	3.7
Paid holidays	99	99	99	99	96	97	92	91	89	89
Average days per year	10.1	10.0	9.8	10.0	9.4	9.2	10.2	9.4	9.1	9.3
Paid personal leave	20	24	23	25	24	22	21	21	22	20
Average days per year	–	3.8	3.6	3.7	3.3	3.1	3.3	3.1	3.3	3.5
Paid vacations	100	99	99	100	98	97	96	97	96	95
Paid sick leave [1]	62	67	67	70	69	68	67	65	58	56
Unpaid maternity leave	–	–	–	–	33	37	37	60	–	–
Unpaid paternity leave	–	–	–	–	16	18	26	53	–	–
Unpaid family leave	–	–	–	–	–	–	–	–	84	93
Insurance plans										
Participants in medical care plans	97	97	97	95	90	92	83	82	77	76
Percent of participants with coverage for:										
Home health care	–	–	46	66	76	75	81	86	78	85
Extended care facilities	58	62	62	70	79	80	80	82	73	78
Physical exam	–	–	8	18	28	28	30	42	56	63
Percent of participants with employee contribution required for:										
Self coverage	26	27	36	43	44	47	51	61	67	69
Average monthly contribution	–	–	$11.93	$12.80	$19.29	$25.31	$26.60	$31.55	$33.92	$39.14
Family coverage	46	51	58	63	64	66	69	76	78	80
Average monthly contribution	–	–	$35.93	$41.40	$60.07	$72.10	$96.97	$107.42	$118.33	$130.07
Participants in life insurance plans	96	96	96	96	92	94	94	91	87	87
Percent of participants with:										
Accidental death and dismemberment insurance	69	72	74	72	78	71	71	76	77	74
Survivor income benefits	–	–	–	10	8	7	6	5	7	6
Retiree protection available	–	64	64	59	49	42	44	41	37	33
Participants in long-term disability insurance plans	40	43	47	48	42	45	40	41	42	43
Participants in sickness and accident insurance plans	54	51	51	49	46	43	45	44	–	–
Participants in short-term disability plans [1]	–	–	–	–	–	–	–	–	53	55
Retirement plans										
Participants in defined benefit pension plans	84	84	82	76	63	63	59	56	52	50
Percent of participants with:										
Normal retirement prior to age 65	55	58	63	64	59	62	55	52	52	52
Early retirement available	98	97	97	98	98	97	98	95	96	95
Ad hoc pension increase in last 5 years	–	–	47	35	26	22	7	6	4	10
Terminal earnings formula	53	52	54	57	55	64	56	61	58	56
Benefit coordinated with Social Security	45	45	56	62	62	63	54	48	51	49
Participants in defined contribution plans	–	–	–	60	45	48	48	49	55	57
Participants in plans with tax-deferred savings arrangements	–	–	–	33	36	41	44	43	54	55
Other benefits										
Employees eligible for:										
Flexible benefits plans	–	–	–	2	5	9	10	12	12	13
Reimbursement accounts [2]	–	–	–	5	12	23	36	52	38	32
Premium conversion plans	–	–	–	–	–	–	–	–	5	7

[1] The definitions for paid sick leave and short-term disability (previously sickness and accident insurance) were changed for the 1995 survey. Paid sick leave now includes only plans that specify either a maximum number of days per year or unlimited days. Short-terms disability now includes all insured, self-insured, and State-mandated plans available on a per-disability basis, as well as the unfunded per-disability plans previously reported as sick leave. Sickness and accident insurance, reported in years prior to this survey, included only insured, self-insured, and State-mandated plans providing per-disability benefits at less than full pay.

[2] Prior to 1995, reimbursement accounts included premium conversion plans, which specifically allow medical plan participants to pay required plan premiums with pretax dollars. Also, reimbursement accounts that were part of flexible benefit plans were tabulated separately.

NOTE: Dash indicates data not available.

26. Percent of full-time employees participating in employer-provided benefit plans, and in selected features within plans, small private establishments and State and local governments, 1987, 1990, 1992, 1994, and 1996

Item	Small private establishments				State and local governments			
	1990	1992	1994	1996	1987	1990	1992	1994
Scope of survey (in 000's)	32,466	34,360	35,910	39,816	10,321	12,972	12,466	12,907
Number of employees (in 000's):								
With medical care	22,402	24,396	23,536	25,599	9,599	12,064	11,219	11,192
With life insurance	20,778	21,990	21,955	24,635	8,773	11,415	11,095	11,194
With defined benefit plan	6,493	7,559	5,480	5,883	9,599	11,675	10,845	11,708
Time-off plans								
Participants with:								
Paid lunch time	8	9	–	–	17	11	10	–
Average minutes per day	37	37	–	–	34	36	34	–
Paid rest time	48	49	–	–	58	56	53	–
Average minutes per day	27	26	–	–	29	29	29	–
Paid funeral leave	47	50	50	51	56	63	65	62
Average days per occurrence	2.9	3.0	3.1	3.0	3.7	3.7	3.7	3.7
Paid holidays	84	82	82	80	81	74	75	73
Average days per year[1]	9.5	9.2	7.5	7.6	10.9	13.6	14.2	11.5
Paid personal leave	11	12	13	14	38	39	38	38
Average days per year	2.8	2.6	2.6	3.0	2.7	2.9	2.9	3.0
Paid vacations	88	88	88	86	72	67	67	66
Paid sick leave [2]	47	53	50	50	97	95	95	94
Unpaid leave	17	18	–	–	57	51	59	–
Unpaid paternity leave	8	7	–	–	30	33	44	–
Unpaid family leave	–	–	47	48	–	–	–	93
Insurance plans								
Participants in medical care plans	69	71	66	64	93	93	90	87
Percent of participants with coverage for:								
Home health care	79	80	–	–	76	82	87	84
Extended care facilities	83	84	–	–	78	79	84	81
Physical exam	26	28	–	–	36	36	47	55
Percent of participants with employee contribution required for:								
Self coverage	42	47	52	52	35	38	43	47
Average monthly contribution	$25.13	$36.51	$40.97	$42.63	$15.74	$25.53	$28.97	$30.20
Family coverage	67	73	76	75	71	65	72	71
Average monthly contribution	$109.34	$150.54	$159.63	$181.53	$71.89	$117.59	$139.23	$149.70
Participants in life insurance plans	64	64	61	62	85	88	89	87
Percent of participants with:								
Accidental death and dismemberment insurance	78	76	79	77	67	67	74	64
Survivor income benefits	1	1	2	1	1	1	1	2
Retiree protection available	19	25	20	13	55	45	46	46
Participants in long-term disability insurance plans	19	23	20	22	31	27	28	30
Participants in sickness and accident insurance plans	6	26	26	–	14	21	22	21
Participants in short-term disability plans [2]	–	–	–	29	–	–	–	–
Retirement plans								
Participants in defined benefit pension plans	20	22	15	15	93	90	87	91
Percent of participants with:								
Normal retirement prior to age 65	54	50	–	47	92	89	92	92
Early retirement available	95	95	–	92	90	88	89	87
Ad hoc pension increase in last 5 years	7	4	–	–	33	16	10	13
Terminal earnings formula	58	54	–	53	100	100	100	99
Benefit coordinated with Social Security	49	46	–	44	18	8	10	49
Participants in defined contribution plans	31	33	34	38	9	9	9	9
Participants in plans with tax-deferred savings arrangements	17	24	23	28	28	45	45	24
Other benefits								
Employees eligible for:								
Flexible benefits plans	1	2	3	4	5	5	5	5
Reimbursement accounts [3]	8	14	19	12	5	31	50	64
Premium conversion plans	–	–	–	7	–	–	–	–

[1] Methods used to calculate the average number of paid holidays were revised in 1994 to count partial days more precisely. Average holidays for 1994 are not comparable with those reported in 1990 and 1992.

[2] The definitions for paid sick leave and short-term disability (previously sickness and accident insurance) were changed for the 1996 survey. Paid sick leave now includes only plans that specify either a maximum number of days per year or unlimited days. Short-term disability now includes all insured, self-insured, and State-mandated plans available on a per-disability basis, as well as the unfunded per-disability plans previously reported as sick leave. Sickness and accident insurance, reported in years prior to this survey, included only insured, self-insured, and State-mandated plans providing per-disability benefits at less than full pay.

[3] Prior to 1996, reimbursement accounts included premium conversion plans, which specifically allow medical plan participants to pay required plan premiums with pretax dollars. Also, reimbursement accounts that were part of flexible benefit plans were tabulated separately.

NOTE: Dash indicates data not available.

27. Work stoppages involving 1,000 workers or more

Measure	Annual totals		1998			1999									
	1997	1998	Oct.	Nov.	Dec.	Jan.[P]	Feb.[P]	Mar.[P]	Apr.[P]	May[P]	June[P]	July[P]	Aug.[P]	Sept.[P]	Oct.[P]
Number of stoppages:															
Beginning in period	29	34	5	3	3	1	2	0	1	3	2	1	1	2	0
In effect during period	34	34	7	7	6	5	5	2	3	6	6	6	3	5	2
Workers involved:															
Beginning in period (in thousands)	339	387	8.0	7.1	3.8	1.4	4.1	.0	8.0	9.6	2.2	1.7	11.0	19.1	.0
In effect during period (in thousands)	351	387	10.6	13.7	10.4	9.2	10.3	4.4	12.4	22.0	21.6	16.3	15.4	34.5	10.1
Days idle:															
Number (in thousands)	4,497	5,116	148.7	160.3	171.0	129.0	104.1	101.2	256.8	314.8	309.4	266.4	118.8	176.2	67.1
Percent of estimated working time[1]	.01	.02	.01	.01	.01	.01	.00	.00	.01	.01	.01	.01	.00	.01	.00

[1] Agricultural and government employees are included in the total employed and total working time; private household, forestry, and fishery employees are excluded. An explanation of the measurement of idleness as a percentage of the total time worked is found in " 'Total economy' measures of strike idleness," *Monthly Labor Review*, October 1968, pp. 54–56.
[P] = preliminary.

28. Consumer Price Indexes for All Urban Consumers and for Urban Wage Earners and Clerical Workers: U.S. city average, by expenditure category and commodity or service group

[1982–84 = 100, unless otherwise indicated]

Series	Annual average		1999												2000
	1998	1999	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
CONSUMER PRICE INDEX FOR ALL URBAN CONSUMERS															
All items	163.0	166.6	164.3	164.5	165.0	166.2	166.2	166.2	166.7	167.1	167.9	168.2	168.3	168.3	168.7
All items (1967 = 100)	488.3	499.0	492.3	492.9	494.4	497.8	497.7	497.9	499.2	500.7	502.9	503.9	504.1	504.1	505.5
Food and beverages	161.1	164.6	163.9	163.8	163.7	163.9	164.2	164.1	164.2	164.7	165.1	165.5	165.7	165.9	166.6
Food	160.7	164.1	163.6	163.3	163.3	163.4	163.7	163.6	163.8	164.2	164.6	165.1	165.2	165.4	166.1
Food at home	161.1	164.2	164.3	163.8	163.4	163.5	163.9	163.7	163.7	164.1	164.5	165.1	165.1	165.4	166.3
Cereals and bakery products	181.1	185.0	184.2	183.8	183.5	184.8	185.1	185.7	186.3	184.9	185.2	185.2	184.8	185.9	185.6
Meats, poultry, fish, and eggs	147.3	147.9	146.4	147.0	146.8	146.7	146.7	147.2	147.3	148.5	149.2	149.2	150.5	149.8	150.2
Dairy and related products[1]	150.8	159.6	161.2	162.3	161.5	156.1	156.2	156.1	155.7	156.5	158.7	164.1	164.6	162.1	160.4
Fruits and vegetables	198.2	203.1	208.6	200.3	199.9	203.3	207.2	203.2	202.0	202.1	202.6	202.2	201.2	204.5	208.4
Nonalcoholic beverages and beverage materials	133.0	134.3	133.5	134.5	134.5	134.3	134.2	134.3	134.3	134.5	134.2	134.6	133.9	134.7	137.1
Other foods at home	150.8	153.5	153.0	153.3	152.9	153.6	153.4	153.6	153.7	154.2	153.9	153.7	153.0	153.3	154.3
Sugar and sweets	150.2	152.3	151.7	151.3	151.0	151.7	153.0	152.4	152.4	152.7	153.5	153.3	152.1	152.3	154.8
Fats and oils	146.9	148.3	150.5	150.9	149.4	149.0	147.2	147.5	148.1	148.6	148.5	149.0	145.3	145.1	147.0
Other foods	165.5	168.9	167.7	168.2	168.1	169.2	168.7	169.2	169.3	169.9	169.2	168.7	169.0	169.4	169.8
Other miscellaneous foods[1,2]	102.6	104.9	104.1	105.9	104.9	105.6	105.0	104.9	104.2	104.8	105.3	104.3	103.9	105.7	104.3
Food away from home[1]	161.1	165.1	163.5	163.8	164.2	164.5	164.6	164.6	165.1	165.6	165.8	166.2	166.5	166.8	167.2
Other food away from home[1,2]	101.6	105.2	103.5	103.7	103.7	104.0	104.3	104.4	105.5	105.8	106.4	106.8	106.9	106.9	107.5
Alcoholic beverages	165.7	169.7	167.6	168.6	168.4	168.8	169.3	169.5	169.9	170.2	170.7	170.5	171.2	171.8	172.4
Housing	160.4	163.9	161.8	162.3	162.8	163.0	163.0	164.1	164.7	165.0	165.2	165.0	164.9	164.8	165.8
Shelter	182.1	187.3	184.7	185.5	186.3	186.6	186.5	187.2	188.0	188.3	188.3	188.5	188.6	188.6	189.8
Rent of primary residence	172.1	177.5	175.3	175.6	176.0	176.4	176.7	177.1	177.5	177.9	178.4	178.8	179.8	180.3	180.8
Lodging away from home[2]	109.0	112.3	107.1	110.5	114.5	114.6	111.8	113.8	117.1	117.1	113.8	113.1	108.5	105.8	111.3
Owners' equivalent rent of primary residence[3]	187.8	192.9	191.0	191.3	191.5	191.9	192.2	192.6	193.0	193.4	193.9	194.2	194.9	195.2	195.7
Tenants' and household insurance[1,2]	99.8	101.3	99.7	100.1	100.2	100.3	100.5	102.2	102.1	102.2	102.3	102.2	102.1	102.2	102.4
Fuels and utilities	128.5	128.8	126.2	126.0	125.9	125.7	126.5	130.2	131.1	131.4	132.7	130.3	130.0	129.6	129.9
Fuels	113.7	113.5	110.9	110.6	110.5	110.2	111.0	115.1	116.0	116.2	117.6	115.0	114.6	114.1	114.3
Fuel oil and other fuels	90.0	91.4	86.6	86.2	86.2	87.7	87.7	87.3	87.5	89.2	93.9	97.6	100.7	106.3	114.4
Gas (piped) and electricity	121.2	120.9	118.3	118.0	117.9	117.5	118.4	123.0	124.0	124.1	125.3	122.0	121.4	120.3	119.8
Household furnishings and operations	126.6	126.7	126.8	126.7	126.7	127.2	126.7	126.8	126.8	126.8	127.0	126.6	126.4	126.4	127.0
Apparel	133.0	131.3	127.9	129.7	132.7	135.2	134.2	130.9	127.3	127.5	131.8	134.6	133.6	130.1	126.8
Men's and boys' apparel	131.8	131.1	128.1	129.9	131.4	133.5	133.8	131.4	128.3	127.1	130.5	134.0	133.2	131.5	129.2
Women's and girls' apparel	126.0	123.3	117.7	120.6	126.3	128.7	127.3	122.6	116.1	117.9	125.4	128.4	126.6	121.8	116.0
Infants' and toddlers' apparel[1]	126.1	129.0	130.0	126.4	125.6	128.2	127.6	126.8	127.4	128.3	129.9	132.4	132.6	133.0	133.3
Footwear	128.0	125.7	125.6	124.8	126.4	129.2	127.4	125.4	125.2	123.8	124.7	126.1	126.4	123.7	121.6
Transportation	141.6	144.4	140.4	139.8	140.6	144.3	144.2	143.4	144.7	145.7	146.5	147.3	147.6	148.3	148.3
Private transportation	137.9	140.5	136.7	135.9	136.4	140.1	140.2	139.7	140.6	141.9	142.9	143.3	143.6	144.4	144.4
New and used motor vehicles[2]	100.1	100.1	100.6	99.9	99.6	99.7	99.7	99.7	99.8	99.7	100.1	100.5	100.9	101.1	100.8
New vehicles	143.4	142.9	144.4	143.8	143.4	143.3	142.9	142.5	142.0	141.4	141.6	142.3	143.1	143.6	143.3
Used cars and trucks[1]	150.6	152.0	150.6	148.3	147.4	148.3	149.6	150.9	152.3	153.8	155.7	156.4	156.1	155.0	153.9
Motor fuel	92.2	100.7	85.0	83.6	86.3	100.9	101.4	99.2	102.5	107.8	110.3	110.0	109.3	112.2	112.6
Gasoline (all types)	91.6	100.1	84.5	83.1	85.8	100.4	100.8	98.6	101.9	107.2	109.7	109.4	108.7	111.5	111.9
Motor vehicle parts and equipment	101.1	100.5	101.2	100.9	100.1	100.3	100.2	100.1	100.0	100.1	100.6	100.5	101.2	100.8	100.8
Motor vehicle maintenance and repair	167.1	171.9	169.8	170.4	170.6	170.9	171.3	171.7	172.1	172.1	172.8	173.2	173.6	173.8	174.6
Public transportation	190.3	197.7	190.4	193.1	198.8	201.4	198.4	192.6	200.8	197.1	194.7	201.5	202.2	201.2	199.5
Medical care	242.1	250.6	246.6	247.7	248.3	249.1	249.5	250.2	251.1	251.9	252.3	252.8	253.3	254.2	255.5
Medical care commodities	221.8	230.7	225.9	226.8	227.7	229.3	229.4	230.5	231.7	232.5	233.1	233.2	233.7	234.6	235.2
Medical care services	246.8	255.1	251.3	252.6	253.1	253.5	254.0	254.6	255.5	256.2	256.6	257.1	257.7	258.5	260.1
Professional services	222.2	229.2	225.8	226.8	227.4	228.2	228.6	229.3	229.8	230.1	230.4	230.9	231.4	231.7	233.1
Hospital and related services	287.5	299.5	294.4	296.2	296.6	296.3	297.0	297.6	299.3	301.3	302.1	302.9	303.9	306.3	308.4
Recreation[2]	101.1	102.1	101.7	101.8	101.8	102.0	102.2	102.2	102.2	102.2	101.7	101.8	101.9	102.0	102.3
Video and audio[1,2]	101.1	100.7	101.4	101.6	101.2	101.0	100.9	100.7	100.6	100.9	100.1	100.1	100.1	100.1	100.5
Education and communication[2]	100.3	101.2	100.9	100.9	100.8	100.7	100.4	100.3	100.4	101.2	101.9	102.1	102.2	102.3	102.7
Education[2]	102.1	107.0	105.0	105.3	105.4	105.5	105.6	105.7	106.0	107.5	109.4	109.6	109.3	109.3	110.2
Educational books and supplies	250.8	261.7	258.4	261.3	261.4	261.2	261.6	262.1	262.3	264.5	267.0	269.0	255.7	256.0	273.9
Tuition, other school fees, and child care	294.2	308.4	302.4	303.3	303.5	303.8	304.1	304.4	305.4	309.9	315.3	315.9	316.3	316.3	317.3
Communication[1,2]	98.7	96.0	97.3	96.9	96.6	96.3	95.7	95.5	95.5	95.6	95.3	95.3	95.9	95.9	96.0
Information and information processing[1,2]	98.5	95.5	96.9	96.5	96.1	95.8	95.2	94.9	94.9	95.0	94.7	94.7	95.3	95.4	95.5
Telephone services[1,2]	100.7	100.1	100.7	100.4	100.2	100.0	99.6	99.7	99.5	99.8	99.6	99.8	100.6	100.7	100.9
Information and information processing other than telephone services[1,4]	39.9	30.5	33.8	33.3	32.4	32.1	30.9	29.8	30.0	29.8	29.3	28.7	28.2	28.2	28.0
Personal computers and peripheral equipment[1,2]	78.2	53.5	61.4	59.7	57.6	56.8	55.7	54.5	52.9	50.9	49.7	48.2	47.0	47.2	46.4
Other goods and services	237.7	258.3	255.4	255.0	253.3	256.1	255.8	255.9	258.3	257.6	262.6	263.2	263.0	263.0	264.7
Tobacco and smoking products	274.8	355.8	354.2	348.7	335.9	349.9	345.5	343.2	356.0	350.1	373.8	373.3	369.8	369.1	375.1
Personal care[1]	156.7	161.1	158.9	159.4	160.0	160.2	160.7	161.1	161.1	161.4	161.8	162.4	162.8	162.9	163.4
Personal care products[1]	148.3	151.8	149.9	149.8	150.8	150.9	150.9	152.6	152.0	152.3	153.0	153.4	153.3	152.5	152.8
Personal care services[1]	166.0	171.4	168.8	169.3	169.9	170.3	171.0	170.9	171.4	171.9	172.1	172.9	173.9	174.3	174.9

28. Continued—Consumer Price Indexes for All Urban Consumers and for Urban Wage Earners and Clerical Workers: U.S. city average, by expenditure category and commodity or service group

[1982–84 = 100, unless otherwise indicated]

Series	Annual average		1999												2000
	1998	1999	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
Miscellaneous personal services	234.7	243.0	238.9	240.6	241.1	241.4	242.1	242.4	242.9	243.9	244.6	245.6	246.0	246.6	247.6
Commodity and service group:															
Commodities	141.9	144.4	142.5	142.2	142.6	144.6	144.5	143.9	143.9	144.5	145.8	146.4	146.2	146.1	146.2
Food and beverages	161.1	164.6	163.9	163.8	163.7	163.9	164.2	164.1	164.2	164.7	165.1	165.5	165.7	165.9	166.6
Commodities less food and beverages	130.5	132.5	129.9	129.6	130.2	133.2	132.8	131.9	131.9	132.5	134.3	134.9	134.6	134.4	134.0
Nondurables less food and beverages	132.6	137.5	131.8	131.9	133.2	138.6	138.2	136.6	136.7	138.0	141.0	141.9	141.3	140.9	140.5
Apparel	133.0	131.3	127.9	129.7	132.7	135.2	134.2	130.9	127.3	127.5	131.8	134.6	133.6	130.1	126.8
Nondurables less food, beverages, and apparel	137.4	146.0	138.8	138.0	138.5	145.7	145.6	144.8	146.8	148.8	151.2	151.2	150.7	152.1	153.1
Durables	127.6	126.0	127.1	126.4	126.0	126.1	125.8	125.7	125.6	125.4	125.7	125.9	126.0	125.9	125.7
Services	184.2	188.8	186.3	186.9	187.6	187.8	187.9	188.6	189.5	189.9	190.1	190.2	190.5	190.5	191.4
Rent of shelter[3]	189.6	195.0	192.3	193.1	193.9	194.3	194.2	194.9	195.7	196.1	196.1	196.3	196.3	196.3	197.6
Transporatation services	187.9	190.7	188.8	189.3	190.7	191.0	190.4	189.3	191.0	190.2	189.9	191.9	192.7	192.8	193.0
Other services	216.9	223.1	220.5	221.1	221.3	221.7	221.9	222.2	222.6	223.9	224.5	225.1	226.0	226.5	227.4
Special indexes:															
All items less food	163.4	167.0	164.5	164.7	165.3	166.7	166.6	166.7	167.2	167.7	168.5	168.8	168.8	168.8	169.2
All items less shelter	157.2	160.2	158.1	158.1	158.5	159.9	159.9	159.7	160.1	160.6	161.6	162.0	162.1	162.1	162.3
All items less medical care	158.6	162.0	159.8	160.0	160.5	161.6	161.6	161.6	162.0	162.5	163.2	163.6	163.6	163.6	164.0
Commodities less food	132.0	134.0	131.4	131.1	131.7	134.6	134.3	133.4	133.4	134.0	135.8	136.3	136.1	135.9	135.6
Nondurables less food	134.6	139.4	133.9	134.0	135.3	140.4	140.1	138.6	138.7	139.9	142.8	143.7	143.1	142.8	142.4
Nondurables less food and apparel	139.2	147.5	140.7	140.0	140.5	147.0	147.0	146.3	148.2	150.0	152.3	152.3	151.9	153.2	154.2
Nondurables	146.9	151.2	147.9	147.9	148.5	151.4	151.4	150.5	150.6	151.5	153.2	154.0	153.7	153.6	153.7
Services less rent of shelter[3]	191.8	195.8	193.3	193.8	194.2	194.5	194.7	195.6	196.5	196.9	197.3	197.4	197.9	198.0	198.6
Services less medical care services	178.4	182.7	180.3	180.9	181.5	181.8	181.8	182.6	183.4	183.8	183.9	184.1	184.3	184.3	185.1
Energy	102.9	106.6	98.1	97.3	98.4	105.0	105.6	106.8	108.7	111.3	113.2	111.6	111.2	112.2	112.5
All items less energy	170.9	174.4	172.9	173.2	173.7	174.2	174.1	174.0	174.3	174.5	175.1	175.7	175.8	175.7	176.2
All items less food and energy	173.4	177.0	175.3	175.7	176.2	176.8	176.6	176.6	176.9	177.1	177.7	178.3	178.4	178.2	178.7
Commodities less food and energy	143.2	144.1	143.7	143.7	143.9	144.9	144.5	143.7	143.2	143.0	144.6	145.3	145.0	144.2	143.6
Energy commodities	92.1	100.0	85.2	83.9	86.4	99.9	100.3	98.3	101.3	106.3	109.1	109.1	108.7	111.8	112.8
Services less energy	190.6	195.7	193.2	194.0	194.7	195.0	195.0	195.3	196.1	196.5	196.6	197.2	197.5	197.7	198.7
CONSUMER PRICE INDEX FOR URBAN WAGE EARNERS AND CLERICAL WORKERS															
All items	159.7	163.2	161.0	161.1	161.4	162.7	162.8	162.8	163.3	163.8	164.7	165.0	165.1	165.1	165.5
All items (1967 = 100)	475.6	486.2	479.7	479.8	480.9	484.7	484.9	485.0	486.3	487.8	490.5	491.5	491.7	491.8	492.9
Food and beverages	160.4	163.8	163.1	163.0	162.9	163.0	163.3	163.3	163.4	163.9	164.3	164.7	164.9	165.2	165.9
Food	160.0	163.4	162.8	162.6	162.6	162.6	162.9	162.8	163.0	163.5	163.9	164.4	164.5	164.7	165.4
Food at home	160.0	163.0	163.1	162.6	162.3	162.2	162.6	162.5	162.5	162.9	163.5	164.0	164.0	164.2	165.1
Cereals and bakery products	180.9	184.7	184.0	183.5	183.2	184.5	184.8	185.5	186.1	184.8	185.0	185.0	184.5	185.7	185.5
Meats, poultry, fish, and eggs	147.0	147.6	146.0	146.7	146.4	146.3	146.1	146.9	146.8	148.2	148.9	148.8	150.1	149.4	149.8
Dairy and related products[1]	150.4	159.4	161.1	162.2	161.5	155.7	155.8	155.7	155.3	156.0	158.4	164.0	164.6	161.9	159.9
Fruits and vegetables	197.0	201.8	207.3	199.3	198.7	201.7	205.3	201.9	201.0	201.2	201.6	201.0	199.8	202.8	207.0
Nonalcoholic beverages and beverage materials	131.8	133.2	132.5	133.4	133.6	133.2	133.1	133.2	133.1	133.2	133.0	133.4	132.7	133.5	136.0
Other foods at home	150.2	152.8	152.4	152.6	152.3	153.0	152.6	152.8	153.0	153.5	153.3	152.9	152.3	152.7	153.7
Sugar and sweets	150.1	152.2	151.8	151.3	151.1	151.7	152.8	152.0	152.0	152.6	153.3	153.2	152.0	152.3	154.8
Fats and oils	146.5	147.9	150.1	150.6	148.9	148.6	147.0	147.2	147.8	148.3	148.1	148.6	144.9	144.7	146.8
Other foods	165.4	168.8	167.7	168.1	168.0	169.0	168.5	169.0	169.2	169.7	169.2	168.5	168.8	169.4	169.8
Other miscellaneous foods[1,2]	102.6	104.6	104.2	105.9	105.0	105.2	104.7	104.4	103.9	104.4	105.1	103.8	103.4	105.2	103.9
Food away from home[1]	161.1	165.0	163.5	163.8	164.1	164.4	164.5	164.4	164.9	165.5	165.8	166.1	166.5	166.8	167.1
Other food away from home[1,2]	101.6	105.1	103.6	103.7	103.8	104.1	104.2	104.5	105.3	105.8	106.2	106.6	106.8	106.9	107.4
Alcoholic beverages	164.6	168.8	166.5	167.6	167.3	167.8	168.5	168.7	169.1	169.2	169.8	169.5	170.4	171.0	171.6
Housing	156.7	160.0	158.1	158.4	158.8	159.1	159.2	160.2	160.7	161.0	161.3	161.0	161.1	161.1	161.8
Shelter	176.6	181.6	179.3	179.9	180.5	180.8	180.9	181.5	182.0	182.4	182.6	182.8	183.1	183.3	184.1
Rent of primary residence	171.7	177.1	174.9	175.3	175.6	176.0	176.4	176.8	177.1	177.5	178.0	178.4	179.3	179.9	180.3
Lodging away from home[2]	109.0	122.2	107.1	110.3	114.2	114.5	112.0	113.8	116.7	116.8	113.8	113.1	108.4	105.7	110.8
Owners' equivalent rent of primary residence[3]	171.1	175.7	173.9	174.2	174.5	174.8	175.1	175.4	175.7	176.1	176.5	176.8	177.4	177.8	178.2
Tenants' and household insurance[1,2]	100.0	101.6	100.1	100.4	100.6	100.6	100.9	102.3	102.2	102.3	102.5	102.4	102.3	102.4	102.6
Fuels and utilities	128.4	128.7	126.0	125.8	125.8	125.5	126.3	130.2	131.1	131.4	132.6	130.1	129.8	129.2	129.5
Fuels	113.3	113.0	110.4	110.2	110.0	109.7	110.6	114.7	115.7	115.9	117.2	114.4	114.0	113.5	113.6
Fuel oil and other fuels	90.3	91.7	87.1	86.8	85.8	88.1	88.0	87.8	87.6	89.3	93.9	97.7	100.7	106.0	114.0
Gas (piped) and electricity	120.8	120.4	117.7	117.5	117.3	116.9	117.9	122.6	123.6	123.7	124.9	121.5	120.9	119.8	119.4
Household furnishings and operations	125.0	124.7	125.0	124.8	124.9	125.2	124.8	124.8	124.9	124.7	124.8	124.5	124.2	124.2	124.5
Apparel	131.6	130.1	127.1	128.5	131.1	133.7	133.0	129.6	126.4	126.4	130.5	133.1	132.3	129.0	125.9
Men's and boys' apparel	131.4	131.2	128.1	129.9	131.6	133.6	134.0	131.6	128.6	127.2	130.3	134.0	133.3	131.6	129.3
Women's and girls' apparel	123.9	121.3	116.4	118.8	123.9	126.5	125.5	120.6	114.4	116.0	123.3	126.0	124.4	119.8	114.2
Infants' and toddlers' apparel[1]	126.7	130.3	130.8	127.2	126.5	129.3	128.9	128.0	128.4	129.6	131.4	134.1	134.3	134.8	134.9
Footwear	128.7	126.2	126.1	125.4	126.8	129.5	127.9	125.8	125.8	124.4	125.1	126.6	126.9	124.2	122.3
Transportation	140.5	143.4	139.1	138.3	139.1	142.9	143.1	142.4	143.7	145.0	146.0	146.6	146.9	147.6	147.7
Private transportation	138.0	140.7	136.5	135.6	136.2	140.1	140.3	139.9	140.9	142.4	143.6	143.9	144.2	145.0	145.1
New and used motor vehicles[2]	100.3	100.4	100.6	99.9	99.5	99.7	99.8	100.0	100.1	100.2	100.7	101.2	101.5	101.5	101.2

28. Continued—Consumer Price Indexes for All Urban Consumers and for Urban Wage Earners and Clerical Workers: U.S. city average, by expenditure category and commodity or service group

[1982–84 = 100, unless otherwise indicated]

Series	Annual average		1999												2000
	1998	1999	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
New vehicles	144.6	144.0	145.5	145.0	144.5	144.5	144.0	143.6	143.2	142.6	142.8	143.5	144.3	144.7	144.5
Used cars and trucks[1]	152.0	153.3	151.8	149.6	148.7	149.6	150.9	152.2	153.7	155.2	157.0	157.7	157.3	156.3	155.3
Motor fuel	92.2	100.8	85.0	83.5	86.4	100.8	101.3	99.2	102.6	107.8	110.6	110.0	109.5	112.3	112.9
Gasoline (all types)	91.7	100.2	84.5	83.0	85.9	100.3	100.8	98.7	102.1	107.3	110.0	109.4	108.9	111.7	112.3
Motor vehicle parts and equipment	100.5	100.0	100.6	100.5	99.8	99.6	99.7	99.6	99.5	99.6	99.9	99.8	100.6	100.2	100.3
Motor vehicle maintenance and repair	168.2	173.3	171.2	171.8	172.0	172.3	172.7	173.1	173.5	173.5	174.3	174.7	175.1	175.2	176.1
Public transportation	187.1	193.1	186.8	189.1	194.1	196.4	193.9	189.0	195.7	192.5	190.7	196.3	197.0	196.0	194.8
Medical care	241.4	249.7	245.8	246.9	247.5	248.2	248.7	249.4	250.3	251.0	251.4	251.9	252.5	253.2	254.5
Medical care commodities	218.6	226.8	222.4	223.2	223.9	225.7	225.7	226.6	227.8	228.4	229.0	229.1	229.5	230.2	230.7
Medical care services	246.6	254.9	251.0	252.3	252.8	253.3	253.8	254.5	255.3	256.0	256.4	257.0	257.6	258.4	259.9
Professional services	223.7	230.8	227.3	228.3	228.9	229.7	230.2	231.0	231.4	231.7	232.0	232.5	233.1	233.4	234.8
Hospital and related services	283.6	295.5	290.4	292.4	292.8	292.3	293.0	293.6	295.3	297.3	298.2	298.9	299.8	302.1	304.1
Recreation[2]	100.9	101.3	101.2	101.3	101.3	101.4	101.5	101.6	101.6	101.5	101.0	101.1	101.0	101.2	101.4
Video and audio[1,2]	101.1	100.5	101.3	101.4	101.0	100.8	100.6	100.5	100.4	100.7	99.8	99.9	99.9	99.8	100.2
Education and communication[2]	100.4	101.5	101.2	101.2	101.0	100.9	100.7	100.7	100.8	101.5	102.1	102.3	102.5	102.5	103.0
Education[2]	102.1	107.2	105.1	105.5	105.6	105.7	105.9	106.0	106.3	107.7	109.5	109.7	109.4	109.4	110.5
Educational books and supplies	253.1	264.1	260.8	263.9	264.0	263.9	264.3	264.8	265.0	267.2	269.9	271.8	256.5	256.9	276.6
Tuition, other school fees, and child care	288.5	302.8	296.6	297.8	298.0	298.3	298.7	299.2	300.2	304.1	309.5	310.0	310.4	310.4	311.7
Communication[1,2]	99.1	96.9	98.1	97.7	97.4	97.0	96.5	96.4	96.3	96.5	96.2	96.3	96.9	97.0	97.1
Information and information processing[1,2]	99.0	96.5	97.8	97.4	97.1	96.7	96.2	96.0	96.0	96.1	95.8	95.9	96.6	96.6	96.7
Telephone services[1,2]	100.7	100.2	100.8	100.5	100.4	100.0	99.8	99.9	99.7	99.9	99.7	100.0	100.8	100.9	101.1
Information and information processing other than telephone services[1,4]	41.2	31.6	35.0	34.4	33.5	33.0	31.8	30.8	31.1	30.8	30.3	29.9	29.3	29.3	28.9
Personal computers and peripheral equipment[1,2]	77.9	53.1	61.1	59.3	56.9	55.9	55.1	54.0	52.5	50.6	49.4	48.1	46.9	46.9	45.7
Other goods and services	236.1	261.9	259.2	258.3	255.6	259.5	258.8	258.7	262.0	260.7	267.3	267.9	267.4	267.3	269.3
Tobacco and smoking products	274.8	356.2	354.5	348.9	336.0	350.5	345.9	343.5	356.6	350.6	374.4	374.0	370.4	369.7	375.7
Personal care[1]	156.8	161.3	159.1	159.6	160.3	160.4	160.8	161.3	161.3	161.6	161.9	162.6	163.0	163.1	163.5
Personal care products[1]	149.3	152.5	150.7	150.8	151.6	151.7	151.6	153.3	152.7	153.1	153.7	154.1	154.0	153.1	153.4
Personal care services[1]	166.3	171.7	169.1	169.6	170.2	170.6	171.4	171.2	171.8	172.2	172.4	173.2	174.4	174.7	175.3
Miscellaneous personal services	234.0	243.1	239.1	240.8	241.4	241.7	242.3	242.6	243.2	243.8	244.5	245.5	245.9	246.7	247.6
Commodity and service group:															
Commodities	141.8	144.7	142.5	142.2	142.5	144.7	144.6	144.0	144.2	144.8	146.3	146.8	146.6	146.6	146.6
Food and beverages	160.4	163.8	163.1	163.0	162.9	163.0	163.3	163.3	163.4	163.9	164.3	164.7	164.9	165.2	165.9
Commodities less food and beverages	130.6	133.2	130.4	129.9	130.3	133.6	133.4	132.5	132.7	133.4	135.4	165.9	135.6	135.4	135.1
Nondurables less food and beverages	132.1	138.1	132.0	131.8	133.1	139.1	138.8	137.0	137.5	138.8	142.1	142.9	142.2	142.0	141.7
Apparel	131.6	130.1	127.1	128.5	131.1	133.7	133.0	129.6	126.4	126.4	130.5	133.1	132.3	129.0	125.9
Nondurables less food, beverages, and apparel	137.0	147.2	139.2	138.2	138.7	146.7	146.6	145.7	148.1	150.2	153.2	153.1	152.5	153.9	155.0
Durables	127.3	126.0	126.9	126.1	125.7	125.8	125.6	125.6	125.7	125.7	126.1	126.3	126.4	126.3	126.0
Services	181.0	185.3	183.0	183.5	184.0	184.2	184.4	185.2	185.9	186.3	186.6	186.7	187.1	187.2	187.9
Rent of shelter[3]	170.1	174.9	172.7	173.2	173.8	174.1	174.2	174.7	175.3	175.6	175.8	176.1	176.3	176.5	177.3
Transporatation services	185.4	187.9	186.4	186.8	187.8	187.9	187.5	186.7	188.0	187.4	187.3	189.0	189.8	189.9	190.2
Other services	213.7	219.6	217.1	217.7	217.8	218.1	218.4	218.8	219.2	220.3	220.9	221.6	222.3	222.9	223.8
Special indexes:															
All items less food	159.5	163.1	160.5	160.6	161.1	162.6	162.6	162.7	163.2	163.7	164.7	165.0	165.1	165.1	165.4
All items less shelter	155.0	158.1	155.9	155.8	156.1	157.7	157.7	157.6	158.0	158.6	159.7	160.1	160.1	160.1	160.3
All items less medical care	155.8	159.2	157.1	157.1	157.5	158.8	158.8	158.8	159.2	159.7	160.7	161.0	161.1	161.1	161.4
Commodities less food	132.0	134.6	131.8	131.3	131.8	135.0	134.8	133.9	134.2	134.8	136.7	137.2	137.0	136.8	136.5
Nondurables less food	134.1	140.0	134.1	134.0	135.1	140.8	140.6	138.9	139.4	140.7	143.8	144.6	144.0	143.8	143.6
Nondurables less food and apparel	138.7	148.4	140.9	140.0	140.5	147.9	147.9	147.0	149.3	151.2	154.0	153.8	153.4	154.7	155.8
Nondurables	146.5	151.3	147.8	147.7	148.3	151.4	151.4	150.5	150.8	151.7	153.6	154.3	154.0	154.0	154.2
Services less rent of shelter[3]	170.7	174.1	171.9	172.3	172.6	172.7	173.0	174.0	174.7	175.0	175.5	175.4	175.8	175.9	176.4
Services less medical care services	175.4	179.5	177.3	177.8	178.2	178.4	178.6	179.4	180.1	180.4	180.7	180.8	181.1	181.2	181.9
Energy	102.1	106.1	97.0	96.1	97.5	104.5	105.2	106.2	108.4	111.1	113.1	111.4	111.0	112.1	112.5
All items less energy	167.6	171.1	169.8	170.0	170.2	170.7	170.7	170.6	170.9	171.1	171.8	172.4	172.6	172.5	172.8
All items less food and energy	169.6	173.1	171.6	171.9	172.2	172.9	172.8	172.7	172.9	173.1	173.9	174.5	174.7	174.5	174.8
Commodities less food and energy	142.7	144.3	144.0	143.7	143.7	144.8	144.5	143.8	143.5	143.3	145.0	145.7	145.4	144.6	144.1
Energy commodities	92.3	100.3	85.2	83.8	86.6	100.2	100.6	98.6	101.8	106.8	109.7	109.4	109.1	112.1	113.1
Services less energy	187.7	192.6	190.3	190.9	191.5	191.8	191.9	192.2	192.8	193.2	193.4	194.0	194.4	194.7	195.5

[1] Not seasonally adjusted.

[2] Indexes on a December 1997 = 100 base.

[3] Indexes on a December 1982 = 100 base.

[4] Indexes on a December 1988 = 100 base.

NOTE: Index applies to a month as a whole, not to any specific date.

29. Consumer Price Index: U.S. city average and available local area data: all items

[1982–84 = 100, unless otherwise indicated]

Area	Pricing schedule[1]	All Urban Consumers							Urban Wage Earners						
		1998	1999					2000	1998	1999					2000
		Dec.	Jan.	Sept.	Oct.	Nov.	Dec.	Jan.	Dec.	Jan.	Sept.	Oct.	Nov.	Dec.	Jan.
U.S. city average	M	163.9	164.3	167.9	168.2	168.3	168.3	168.7	160.7	161.0	164.7	165.0	165.1	165.1	165.5
Region and area size[2]															
Northeast urban	M	171.2	171.4	174.8	175.5	175.5	175.5	176.1	168.2	168.4	171.9	172.5	172.6	172.6	173.0
Size A—More than 1,500,000	M	172.2	172.5	175.7	176.4	176.5	176.3	176.9	168.2	168.5	171.8	172.5	172.7	172.4	172.8
Size B/C—50,000 to 1,500,000[3]	M	102.5	102.6	105.1	105.3	105.1	105.4	105.8	102.3	102.4	104.7	105.0	105.0	105.2	105.5
Midwest urban[4]	M	159.8	160.4	164.3	164.3	164.6	164.4	164.8	156.0	156.6	160.6	160.6	160.9	160.7	161.2
Size A—More than 1,500,000	M	161.0	161.6	165.7	165.7	165.6	165.5	166.1	156.5	157.1	161.1	161.1	161.0	161.1	161.6
Size B/C—50,000 to 1,500,000[3]	M	102.3	102.6	105.1	105.0	105.6	105.3	105.5	102.0	102.3	105.1	105.0	105.5	105.3	105.5
Size D—Nonmetropolitan (less than 50,000)	M	155.0	155.5	158.6	158.7	159.3	158.9	159.0	153.3	153.6	157.1	157.2	157.6	157.3	157.6
South urban	M	159.6	159.9	163.2	163.6	163.5	163.6	164.0	157.8	157.9	161.5	161.9	161.8	162.0	162.2
Size A—More than 1,500,000	M	158.3	158.9	162.7	163.2	162.9	163.0	163.5	156.0	156.4	160.4	160.9	160.6	160.9	161.2
Size B/C—50,000 to 1,500,000[3]	M	102.8	102.9	104.8	105.1	105.1	105.2	105.3	102.5	102.5	104.6	104.9	104.9	105.0	105.1
Size D—Nonmetropolitan (less than 50,000)	M	160.4	160.8	164.1	164.1	164.1	163.5	164.4	160.8	161.1	164.8	164.8	165.0	164.6	165.1
West urban	M	165.8	166.4	170.0	170.4	170.4	170.5	171.0	161.8	162.4	165.8	166.2	166.2	166.4	166.7
Size A—More than 1,500,000	M	166.5	167.3	171.2	171.6	171.6	171.7	172.3	160.8	161.6	165.3	165.6	165.7	165.8	166.3
Size B/C—50,000 to 1,500,000[3]	M	103.4	103.6	105.2	105.5	105.5	105.7	105.7	103.3	103.4	105.1	105.4	105.3	105.5	105.5
Size classes:															
A[5]	M	148.4	148.9	152.2	152.6	152.5	152.5	153.0	146.9	147.4	150.8	151.2	151.2	151.2	151.6
B/C[3]	M	102.7	102.9	105.0	105.2	105.3	105.3	105.5	102.5	102.6	104.8	105.0	105.0	105.2	105.3
D	M	160.2	160.6	163.7	163.8	164.2	163.7	164.3	159.2	159.6	163.0	163.1	163.5	163.1	163.5
Selected local areas[6]															
Chicago–Gary–Kenosha, IL–IN–WI	M	165.1	166.1	169.7	169.7	169.3	169.2	170.1	159.6	160.5	164.1	164.0	163.7	163.7	164.5
Los Angeles–Riverside–Orange County, CA	M	163.5	164.2	167.2	167.2	167.1	167.3	167.9	157.2	157.8	160.7	160.7	160.6	160.9	161.2
New York, NY–Northern NJ–Long Island, NY–NJ–CT–PA	M	174.7	175.0	178.2	178.9	178.8	178.6	179.2	170.5	170.8	173.9	174.5	174.6	174.3	174.6
Boston–Brockton–Nashua, MA–NH–ME–CT	1	–	174.1	176.8	–	179.2	–	180.2	–	172.2	175.2	–	177.8	–	178.6
Cleveland–Akron, OH	1	–	160.6	164.2	–	163.8	–	164.4	–	152.7	156.4	–	156.1	–	156.8
Dallas–Ft Worth, TX	1	–	155.0	159.8	–	160.1	–	160.4	–	154.6	159.6	–	159.8	–	160.3
Washington–Baltimore, DC–MD–VA–WV[7]	1	–	102.8	105.4	–	105.0	–	105.3	–	102.7	105.3	–	104.9	–	105.3
Atlanta, GA	2	161.6	–	–	166.5	–	167.0	–	158.8	–	–	164.0	–	164.6	–
Detroit–Ann Arbor–Flint, MI	2	161.2	–	–	165.9	–	165.6	–	155.9	–	–	160.4	–	160.4	–
Houston–Galveston–Brazoria, TX	2	146.1	–	–	151.2	–	150.3	–	144.8	–	–	149.9	–	149.2	–
Miami–Ft. Lauderdale, FL	2	161.1	–	–	164.1	–	164.8	–	158.7	–	–	161.9	–	162.7	–
Philadelphia–Wilmington–Atlantic City, PA–NJ–DE–MD	2	169.0	–	–	174.4	–	172.9	–	168.5	–	–	174.3	–	172.8	–
San Francisco–Oakland–San Jose, CA	2	167.4	–	–	175.2	–	174.5	–	163.7	–	–	171.2	–	170.9	–
Seattle–Tacoma–Bremerton, WA	2	169.4	–	–	174.7	–	174.4	–	164.9	–	–	170.2	–	170.1	–

[1] Foods, fuels, and several other items priced every month in all areas; most other goods and services priced as indicated:

M—Every month.

1—January, March, May, July, September, and November.

2—February, April, June, August, October, and December.

[2] Regions defined as the four Census regions.

[3] Indexes on a December 1996 = 100 base.

[4] The "North Central" region has been renamed the "Midwest" region by the Census Bureau. It is composed of the same geographic entities.

[5] Indexes on a December 1986 = 100 base.

[6] In addition, the following metropolitan areas are published semiannually and appear in tables 34 and 39 of the January and July issues of the *CPI Detailed Report*: Anchorage, AK; Cincinnati–Hamilton, OH–KY–IN; Denver–Boulder–Greeley, CO; Honolulu, HI; Kansas City, MO–KS; Milwaukee–Racine, WI; Minneapolis–St. Paul, MN–WI; Pittsburgh, PA; Portland–Salem, OR–WA; St Louis, MO–IL; San Diego, CA; Tampa–St. Petersburg–Clearwater, FL.

[7] Indexes on a November 1996 = 100 base.

– Data not available.

NOTE: Local area CPI indexes are byproducts of the national CPI program. Each local index has a smaller sample size and is, therefore, subject to substantially more sampling and other measurement error. As a result, local area indexes show greater volatility than the national index, although their long-term trends are similar. Therefore, the Bureau of Labor Statistics strongly urges users to consider adopting the national average CPI for use in their escalator clauses. Index applies to a month as a whole, not to any specific date.

30. Annual data: Consumer Price Index, U.S. city average, all items and major groups

[1982–84 = 100]

Series	1991	1992	1993	1994	1995	1996	1997	1998	1999
Consumer Price Index for All Urban Consumers:									
All items:									
Index	136.2	140.3	144.5	148.2	152.4	156.9	160.5	163.0	166.6
Percent change	4.2	3.0	3.0	2.6	2.8	3.0	2.3	1.6	2.2
Food and beverages:									
Index	136.8	138.7	141.6	144.9	148.9	153.7	157.7	161.1	164.6
Percent change	3.6	1.4	2.1	2.3	2.8	3.2	2.6	2.2	2.2
Housing:									
Index	133.6	137.5	141.2	144.8	148.5	152.8	156.8	160.4	163.9
Percent change	4.0	2.9	2.7	2.5	2.6	2.9	2.6	2.3	2.2
Apparel:									
Index	128.7	131.9	133.7	133.4	132.0	131.7	132.9	133.0	131.3
Percent change	3.7	2.5	1.4	–.2	–1.0	–.2	.9	.1	–1.3
Transportation:									
Index	123.8	126.5	130.4	134.3	139.1	143.0	144.3	141.6	144.4
Percent change	2.7	2.2	3.1	3.0	3.6	2.8	0.9	–1.9	2.0
Medical care:									
Index	177.0	190.1	201.4	211.0	220.5	228.2	234.6	242.1	250.6
Percent change	8.7	7.4	5.9	4.8	4.5	3.5	2.8	3.2	3.5
Other goods and services:									
Index	171.6	183.3	192.9	198.5	206.9	215.4	224.8	237.7	258.3
Percent change	7.9	6.8	5.2	2.9	4.2	4.1	4.4	5.7	8.7
Consumer Price Index for Urban Wage Earners and Clerical Workers:									
All items:									
Index	134.3	138.2	142.1	145.6	149.8	154.1	157.6	159.7	163.2
Percent change	4.1	2.9	2.8	2.5	2.9	2.9	2.3	1.3	2.2

31. Producer Price Indexes, by stage of processing

[1982 = 100]

Grouping	Annual average		1999												2000
	1998	1999[p]	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
Finished goods	130.7	133.1	131.4	130.8	131.1	131.9	132.4	132.7	132.9	133.7	134.7	135.0	135.0	135.0	134.7
Finished consumer goods	128.9	132.1	129.7	129.0	129.4	130.4	131.2	131.7	132.1	133.2	134.6	134.4	134.5	134.4	134.0
Finished consumer foods	134.3	135.1	135.6	134.1	134.7	133.4	134.5	135.1	134.6	135.9	136.7	135.6	135.4	135.7	135.0
Finshed consumer goods excluding foods	126.4	130.6	127.1	126.6	127.0	129.0	129.6	130.0	130.8	131.9	133.5	133.7	133.9	133.7	133.3
Nondurable goods less food	122.2	127.9	122.9	122.2	122.9	125.7	126.6	127.5	128.9	130.4	132.8	131.6	132.0	131.8	131.3
Durable goods	132.9	133.0	133.3	133.5	133.1	133.1	132.8	132.3	131.7	131.6	131.2	134.8	134.6	134.6	134.2
Capital equipment	137.6	137.6	137.8	138.0	137.7	137.8	137.6	137.2	137.0	136.9	136.7	138.5	138.3	138.3	138.4
Intermediate materials, supplies, and components	123.0	123.2	120.9	120.4	120.7	121.6	122.2	123.0	123.9	124.6	125.3	125.2	125.4	125.6	125.9
Materials and components for manufacturing	126.1	124.5	123.9	123.5	123.4	123.2	123.8	124.1	124.6	125.0	125.4	125.9	126.0	126.1	126.5
Materials for food manufacturing	123.2	120.9	124.3	122.2	121.4	118.1	119.6	120.0	119.0	121.1	122.0	122.4	121.4	118.5	117.9
Materials for nondurable manufacturing	126.7	124.8	123.0	122.5	122.6	122.7	123.3	123.8	124.8	125.5	126.5	127.3	127.8	128.4	129.0
Materials for durable manufacturing	128.0	125.1	123.5	123.2	123.2	123.2	124.3	124.8	126.1	126.2	126.2	126.5	126.8	127.4	128.4
Components for manufacturing	125.9	125.7	125.8	125.7	125.7	125.7	125.6	125.7	125.6	125.6	125.7	125.9	125.7	125.7	125.8
Materials and components for construction	146.8	148.9	146.9	147.3	147.8	148.0	148.5	149.5	150.5	150.4	149.6	149.2	149.3	149.7	150.4
Processed fuels and lubricants	81.1	84.9	76.1	74.9	76.2	80.6	82.5	84.9	87.6	90.0	92.5	90.3	91.2	91.7	91.7
Containers	140.8	142.5	138.3	138.0	138.5	140.4	141.6	142.2	142.1	143.6	145.7	146.6	146.5	146.5	147.2
Supplies	134.8	134.2	134.1	133.8	133.7	133.8	133.7	133.9	133.9	134.2	134.4	134.9	135.1	135.2	135.2
Crude materials for further processing	96.8	98.2	90.1	88.2	89.0	91.1	97.4	97.4	97.9	103.1	107.3	104.9	108.6	103.9	106.3
Foodstuffs and feedstuffs	103.9	98.8	101.2	98.2	98.8	95.4	99.6	99.5	96.2	100.1	100.1	99.6	99.5	96.8	96.4
Crude nonfood materials	88.4	94.3	79.2	78.1	79.1	84.8	92.3	92.5	95.5	101.5	108.3	104.7	110.9	105.0	109.2
Special groupings:															
Finished goods, excluding foods	129.5	132.3	130.0	129.7	129.9	131.3	131.6	131.8	132.3	133.0	134.0	134.7	134.8	134.7	134.5
Finished energy goods	75.1	78.9	71.3	70.1	71.2	75.9	77.5	78.6	80.7	83.5	85.8	83.6	84.0	83.8	83.8
Finished goods less energy	141.1	143.0	143.0	142.7	142.7	142.3	142.5	142.6	142.3	142.5	143.1	144.2	144.0	144.0	143.6
Finished consumer goods less energy	142.5	145.2	145.1	144.6	144.7	144.2	144.6	144.8	144.5	144.9	145.8	146.5	146.4	146.5	145.8
Finished goods less food and energy	143.7	146.1	145.9	146.0	145.8	145.8	145.6	145.5	145.3	145.2	145.7	147.5	147.4	147.4	147.0
Finished consumer goods less food and energy	147.7	151.7	151.2	151.3	151.2	151.2	151.0	151.0	150.9	150.7	151.7	153.5	153.5	153.4	152.8
Consumer nondurable goods less food and energy	159.1	166.3	165.2	165.2	165.3	165.2	165.2	165.7	165.9	165.7	167.9	168.0	168.3	168.1	167.2
Intermediate materials less foods and feeds	123.4	123.9	121.2	120.9	121.2	122.3	122.9	123.7	124.7	125.4	126.0	125.9	126.2	126.5	126.9
Intermediate foods and feeds	116.2	111.1	114.6	112.6	111.0	109.0	109.8	110.2	109.1	110.9	111.8	112.5	112.0	110.0	109.5
Intermediate energy goods	80.8	84.6	75.9	74.7	76.0	80.3	82.2	84.6	87.2	89.6	92.1	90.0	90.9	91.4	91.4
Intermediate goods less energy	132.4	131.7	130.9	130.6	130.6	130.7	131.1	131.5	131.9	132.3	132.5	132.9	133.0	133.1	133.5
Intermediate materials less foods and energy	133.5	133.1	131.9	131.8	131.9	132.1	132.5	132.9	133.4	133.7	133.9	134.2	134.4	134.6	135.1
Crude energy materials	68.6	78.4	61.0	58.8	60.5	68.1	77.1	77.1	80.4	87.3	95.4	89.6	97.5	89.0	92.9
Crude materials less energy	113.6	108.0	108.1	106.4	106.6	103.9	107.6	107.7	105.8	109.4	110.0	110.6	110.6	109.3	110.4
Crude nonfood materials less energy	142.1	135.3	128.8	130.9	129.9	129.1	131.4	132.2	134.2	136.8	139.1	142.5	142.8	145.5	150.6

32. Producer Price Indexes for the net output of major industry groups

[December 1984 = 100, unless otherwise indicated]

SIC	Industry	Annual average		1999											2000
		1998	1999[P]	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
–	**Total mining industries**	70.8	78.0	64.1	62.5	63.4	68.9	76.5	76.3	78.7	84.7	91.5	88.4	93.9	87.5	90.0
10	Metal mining	73.2	70.5	68.2	69.3	68.3	69.8	69.7	67.3	68.8	69.3	70.4	77.8	73.5	72.6	73.7
12	Coal mining (12/85 = 100)	89.5	87.2	85.5	89.2	89.3	89.9	87.8	88.2	86.9	86.9	85.9	86.9	86.5	85.1	85.9
13	Oil and gas extraction (12/85 = 100)	68.3	78.5	60.3	57.3	58.6	65.7	76.3	76.2	79.6	87.6	96.9	91.9	99.8	91.6	94.7
14	Mining and quarrying of nonmetallic minerals, except fuels	132.2	133.9	133.0	133.5	133.6	133.8	133.8	134.2	134.2	134.2	134.3	134.0	134.2	134.4	134.7
–	**Total manufacturing industries**	126.2	128.3	126.2	125.9	126.3	127.4	127.7	127.8	128.3	129.0	129.7	130.1	130.3	130.6	130.8
20	Food and kindred products	126.3	126.3	126.6	125.8	125.6	124.3	125.3	126.0	125.9	126.8	127.5	127.4	127.2	126.7	126.6
21	Tobacco manufactures	243.1	325.7	316.5	316.3	315.8	316.0	316.1	316.2	316.1	316.5	344.5	344.4	344.6	345.0	329.5
22	Textile mill products	118.6	116.3	117.1	116.6	117.0	116.4	116.4	116.3	115.9	116.0	115.9	116.1	116.0	116.1	116.0
23	Apparel and other finished products made from fabrics and similar materials	124.8	125.3	125.0	125.1	125.2	125.3	125.3	125.1	125.1	125.5	125.6	125.5	125.6	125.6	125.2
24	Lumber and wood products, except furniture	157.0	161.8	156.7	158.3	160.1	160.2	161.9	165.2	168.5	166.9	163.1	159.9	160.0	160.9	161.8
25	Furniture and fixtures	139.7	141.2	140.5	140.5	140.6	140.7	140.9	141.1	141.3	141.6	141.8	141.8	141.8	142.2	142.3
26	Paper and allied products	136.2	136.4	133.0	132.6	133.3	134.2	134.8	135.8	136.3	137.3	138.7	139.8	140.2	140.3	141.0
27	Printing, publishing, and allied industries	174.0	177.5	176.4	176.5	177.0	177.1	177.2	177.2	177.4	177.7	178.1	178.3	178.8	179.2	180.3
28	Chemicals and allied products	148.7	149.5	147.5	147.3	147.5	147.7	148.2	149.0	149.9	150.0	151.0	151.9	152.2	152.5	153.1
29	Petroleum refining and related products	66.3	76.8	58.6	56.2	59.9	73.7	75.4	74.2	79.6	85.3	90.2	86.8	89.6	92.8	94.2
30	Rubber and miscellaneous plastics products	122.1	122.2	121.5	121.4	121.3	121.7	121.6	121.9	122.1	122.5	122.8	122.8	123.2	123.3	123.9
31	Leather and leather products	137.1	136.5	135.8	136.1	136.1	136.1	136.0	136.5	136.7	136.7	136.9	137.1	137.2	137.3	137.3
32	Stone, clay, glass, and concrete products	129.3	132.6	130.7	131.5	131.7	132.1	132.5	132.7	132.7	133.1	133.2	133.5	133.7	133.6	134.2
33	Primary metal industries	120.9	115.7	115.9	115.1	114.8	114.7	114.9	115.0	115.4	115.7	116.4	117.0	116.9	117.2	118.1
34	Fabricated metal products, except machinery and transportation transportation equipment	128.7	129.1	128.8	128.8	128.7	128.9	128.9	129.1	129.1	129.1	129.2	129.4	129.4	129.6	129.8
35	Machinery, except electrical	117.7	117.3	117.4	117.4	117.4	117.5	117.5	117.5	117.3	117.2	117.1	117.2	117.2	117.2	117.2
36	Electrical and electronic machinery, equipment, and supplies	110.4	109.6	110.0	109.9	109.8	109.7	109.7	109.5	109.5	109.5	109.2	109.2	109.4	109.4	108.9
37	Transportation	133.6	134.4	134.5	134.8	134.4	134.5	134.1	133.6	133.0	132.9	132.6	136.5	136.1	136.0	136.1
38	Measuring and controlling instruments; photographic, medical, and optical goods; watches and clocks	126.0	125.7	126.6	126.6	126.4	126.4	125.9	125.3	125.1	125.0	124.9	125.6	125.3	125.4	125.7
39	Miscellaneous manufacturing industries (12/85 = 100)	129.7	130.3	130.2	130.3	130.4	130.4	130.5	130.5	130.5	130.1	130.0	130.4	130.2	130.6	130.9
	Service industries:															
42	Motor freight transportation and warehousing (06/93 = 100)	111.6	114.7	113.6	113.9	114.1	114.2	114.3	114.6	114.8	115.1	115.8	115.4	115.3	115.8	116.5
43	U.S. Postal Service (06/89 = 100)	132.3	135.3	135.4	135.4	135.4	135.4	135.4	135.2	135.2	135.2	135.2	135.2	135.2	135.2	135.2
44	Water transportation (12/92 = 100)	105.6	113.3	106.0	106.0	105.8	106.0	114.4	116.8	117.4	117.2	117.3	117.5	116.3	117.2	116.1
45	Transportation by air (12/92 = 100)	124.5	130.8	126.6	128.4	128.9	129.6	130.0	130.9	131.4	131.7	131.8	132.4	133.0	133.7	135.4
46	Pipelines, except natural gas (12/92 = 100)	99.2	98.4	98.4	98.2	98.2	98.4	98.5	98.6	98.2	98.2	98.3	98.5	98.4	98.4	102.1

33. Annual data: Producer Price Indexes, by stage of processing

[1982 = 100]

Index	1991	1992	1993	1994	1995	1996	1997	1998	1999[P]
Finished goods									
Total	121.7	123.2	124.7	125.5	127.9	131.3	131.8	130.7	133.1
Foods	124.1	123.3	125.7	126.8	129.0	133.6	134.5	134.3	135.1
Energy	78.1	77.8	78.0	77.0	78.1	83.2	83.4	75.1	78.9
Other	131.1	134.2	135.8	137.1	140.0	142.0	142.4	143.7	146.1
Intermediate materials, supplies, and components									
Total	114.4	114.7	116.2	118.5	124.9	125.7	125.6	123.0	123.2
Foods	115.3	113.9	115.6	118.5	119.5	125.3	123.2	123.2	120.9
Energy	85.1	84.3	84.6	83.0	84.1	89.8	89.0	80.8	84.6
Other	121.4	122.0	123.8	127.1	135.2	134.0	134.2	133.5	133.1
Crude materials for further processing									
Total	101.2	100.4	102.4	101.8	102.7	113.8	111.1	96.8	98.2
Foods	105.5	105.1	108.4	106.5	105.8	121.5	112.2	103.9	98.8
Energy	80.4	78.8	76.7	72.1	69.4	85.0	87.3	68.6	78.4
Other	97.5	94.2	94.1	97.0	105.8	105.7	103.5	84.5	91.1

34. U.S. export price indexes by Standard International Trade Classification

[1995 = 100, unless otherwise indicated]

SITC Rev. 3	Industry	1999												2000
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
0	**Food and live animals**	90.4	89.2	87.8	88.2	89.2	89.2	87.4	87.6	86.6	86.4	86.3	85.6	86.1
01	Meat and meat preparations	90.2	93.3	90.0	88.9	89.9	91.5	94.2	97.3	97.5	97.4	97.7	100.9	99.8
04	Cereals and cereal preparations	79.3	77.8	75.8	76.7	76.2	75.9	70.9	73.3	72.7	69.5	70.1	68.5	71.0
05	Vegetables, fruit, and nuts, prepared fresh or dry	103.2	97.9	94.9	94.8	97.6	98.5	99.8	97.8	94.3	96.6	94.3	91.2	90.6
2	**Crude materials, inedible, except fuels**	75.6	75.0	74.0	74.1	74.6	74.9	74.7	76.5	77.7	78.1	77.8	78.9	80.1
21	Hides, skins, and furskins, raw	82.7	81.4	81.5	78.9	79.0	79.0	80.3	83.4	86.5	88.6	87.8	91.6	92.3
22	Oilseeds and oleaginous fruits	91.4	84.9	78.3	80.4	79.5	79.2	72.8	80.1	85.0	82.3	78.1	79.6	80.5
24	Cork and wood	81.4	81.5	81.5	81.8	81.7	82.0	82.9	83.0	82.8	83.5	83.8	85.0	86.6
25	Pulp and waste paper	59.7	61.3	62.0	61.9	62.9	66.0	71.5	73.5	75.2	77.1	78.7	80.9	84.2
26	Textile fibers and their waste	70.4	70.8	69.7	69.8	70.1	68.6	65.2	65.1	64.4	64.5	63.4	62.5	61.2
27	Crude fertilizers and crude minerals	93.4	93.4	93.6	93.5	93.5	93.5	93.6	93.0	93.3	93.1	93.8	94.1	94.3
28	Metalliferous ores and metal scrap	67.7	68.8	69.8	68.6	70.6	70.7	72.3	73.0	73.5	75.1	77.3	78.4	80.1
3	**Mineral fuels, lubricants, and related products**	93.3	93.4	93.1	99.6	100.7	102.0	109.0	113.8	115.3	119.5	121.4	126.6	128.2
32	Coal, coke, and briquettes	99.3	99.3	99.3	98.3	98.4	98.3	98.2	98.3	97.6	97.6	97.6	97.5	96.7
33	Petroleum, petroleum products, and related materials	91.4	91.4	90.9	103.3	105.3	107.6	119.8	126.4	128.6	131.3	133.4	140.1	143.5
4	**Animal and vegetable oils, fats, and waxes**	98.0	90.6	82.6	82.8	81.9	76.6	76.8	77.1	78.8	81.9	79.0	78.0	75.5
5	**Chemicals and related products, n.e.s.**	90.6	90.6	90.5	90.4	90.7	91.2	91.6	91.8	92.3	93.3	93.3	93.5	93.2
54	Medicinal and pharmaceutical products	100.1	100.2	100.4	100.6	100.6	100.6	100.3	99.9	99.8	99.8	99.8	100.3	99.7
55	Essential oils; polishing and cleaning preparations	101.3	101.4	101.5	101.4	101.8	101.9	101.9	101.8	102.1	102.3	103.5	103.4	103.4
57	Plastics in primary forms (12/92 = 100)	84.6	84.4	84.4	85.5	86.6	88.4	89.7	90.6	92.1	94.4	95.1	95.2	94.7
58	Plastics in nonprimary forms (12/92 = 100)	95.9	95.4	96.4	96.1	96.3	97.2	97.4	97.4	97.6	97.9	97.8	98.0	97.8
59	Chemical materials and products, n.e.s.	100.4	100.8	100.4	99.9	99.5	99.6	99.4	99.3	99.2	98.9	98.8	99.1	99.2
6	**Manufactured goods classified chiefly by materials**	96.7	96.8	96.4	96.5	96.6	96.8	97.1	97.3	97.5	97.8	98.0	98.3	98.2
62	Rubber manufactures, n.e.s.	106.5	107.6	106.8	105.9	105.9	105.5	105.6	105.8	106.9	108.2	108.4	108.7	104.7
64	Paper, paperboard, and articles of paper, pulp, and paperboard	80.3	80.8	80.9	81.9	82.9	83.4	84.4	85.4	86.3	87.2	87.6	87.2	87.3
66	Nonmetallic mineral manufactures, n.e.s.	106.9	106.9	106.5	106.6	106.3	106.3	106.3	106.3	106.1	106.0	106.0	105.8	105.8
68	Nonferrous metals	84.5	85.4	84.0	84.3	84.7	85.0	85.3	87.0	88.0	90.2	90.7	92.1	93.0
7	**Machinery and transport equipment**	98.1	98.1	97.9	98.0	97.8	97.6	97.3	97.3	97.2	97.4	97.5	97.3	97.3
71	Power generating machinery and equipment	109.1	109.3	109.4	109.6	109.5	109.6	110.1	110.1	110.1	110.2	111.0	110.4	111.0
72	Machinery specialized for particular industries	105.7	105.6	105.7	105.9	105.9	106.1	105.8	105.8	105.9	106.0	106.1	106.1	106.2
74	General industrial machines and parts, n.e.s., and machine parts	107.0	107.4	107.2	107.3	107.2	107.3	107.5	107.5	107.6	107.7	107.7	107.9	107.9
75	Computer equipment and office machines	73.6	73.3	73.0	72.7	72.2	71.6	71.0	71.0	70.2	70.5	70.4	70.3	70.2
76	Telecommunications and sound recording and reproducing apparatus and equipment	97.6	97.4	97.5	97.3	97.1	96.9	97.0	96.9	96.9	96.6	96.6	96.7	96.3
77	Electrical machinery and equipment	89.9	89.9	89.3	89.6	89.0	88.6	87.7	87.5	87.6	87.4	87.3	86.8	86.4
78	Road vehicles	102.1	102.3	102.2	102.2	102.3	102.5	102.4	102.3	102.4	103.1	103.1	103.1	103.4
87	**Professional, scientific, and controlling instruments and apparatus**	104.8	104.8	105.0	105.2	105.4	105.2	105.4	105.4	105.4	105.5	105.6	105.3	105.3

35. U.S. import price indexes by Standard International Trade Classification

[1995 = 100, unless otherwise indicated]

SITC Rev. 3	Industry	1999												2000
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
0	**Food and live animals**	96.3	93.2	93.2	94.5	94.9	93.3	92.6	92.0	91.5	91.0	92.4	94.7	93.4
01	Meat and meat preparations	91.9	92.2	94.0	94.5	93.7	94.5	94.3	96.7	99.4	98.4	97.7	98.4	97.9
03	Fish and crustaceans, mollusks, and other aquatic invertebrates	100.9	102.7	103.3	106.0	106.0	104.3	104.2	103.8	103.1	105.0	107.5	106.8	107.0
05	Vegetables, fruit, and nuts, prepared fresh or dry	112.8	102.1	101.7	104.9	108.1	103.2	103.5	102.6	101.6	96.5	97.2	103.4	101.0
07	Coffee, tea, cocoa, spices, and manufactures thereof	76.2	72.3	71.0	69.5	68.4	69.4	64.3	63.2	61.4	62.0	66.0	70.6	67.2
1	**Beverages and tobacco**	110.4	110.0	110.4	110.6	110.4	110.4	110.6	111.2	112.2	111.5	111.5	112.0	111.8
11	Beverages	106.7	106.7	106.9	107.2	107.2	107.2	107.6	107.7	109.1	108.5	108.5	108.7	108.7
2	**Crude materials, inedible, except fuels**	84.3	87.4	86.3	86.1	88.5	90.3	93.1	92.7	91.7	90.8	90.2	92.1	93.3
24	Cork and wood	108.6	113.7	113.2	113.6	118.3	122.3	131.9	128.9	121.7	116.7	114.9	118.7	117.7
25	Pulp and waste paper	57.2	57.9	57.6	57.3	58.1	60.6	61.4	61.1	66.0	63.9	66.7	68.0	69.6
28	Metalliferous ores and metal scrap	90.9	90.4	89.9	89.5	90.9	91.9	91.9	93.8	94.3	98.4	98.0	99.0	101.9
29	Crude animal and vegetable materials, n.e.s.	103.4	120.7	109.4	108.6	107.8	101.7	102.8	105.0	111.1	112.1	106.5	111.9	119.2
3	**Mineral fuels, lubricants, and related products**	67.5	66.6	73.2	86.3	93.1	92.7	105.3	117.1	126.5	128.0	134.6	141.7	142.7
33	Petroleum, petroleum products, and related materials	61.7	61.3	70.2	84.9	91.1	91.3	103.8	115.9	125.7	127.4	132.5	142.0	143.9
34	Gas, natural and manufactured	113.5	107.3	97.4	99.3	112.1	106.5	123.1	134.1	142.2	141.1	161.5	150.3	143.3
5	**Chemicals and related products, n.e.s.**	91.4	91.1	90.8	90.6	90.6	90.6	90.6	90.4	91.3	91.8	92.1	91.9	92.2
52	Inorganic chemicals	90.1	88.7	88.6	86.9	86.8	86.7	86.4	86.2	86.6	87.2	87.7	88.0	88.3
53	Dying, tanning, and coloring materials	94.7	94.0	94.3	92.6	91.7	91.9	90.6	90.5	90.2	90.6	91.4	89.7	88.9
54	Medicinal and pharmaceutical products	97.0	97.4	96.7	96.1	95.6	96.2	96.2	96.3	97.0	97.4	97.8	97.3	98.7
55	Essential oils; polishing and cleaning preparations	94.6	94.3	93.5	93.1	92.7	92.4	91.7	91.8	92.3	91.8	92.3	90.2	89.4
57	Plastics in primary forms (12/92 = 100)	91.8	92.2	92.0	92.5	93.4	93.6	93.7	93.1	93.8	93.8	93.9	94.0	93.7
58	Plastics in nonprimary forms (12/92 = 100)	73.5	73.0	73.1	73.5	74.0	75.6	75.8	76.1	77.9	78.9	79.4	79.7	79.3
59	Chemical materials and products, n.e.s.	98.8	98.1	97.9	98.5	98.0	97.4	98.0	98.1	98.1	98.6	98.4	98.8	99.1
6	**Manufactured goods classified chiefly by materials**	91.6	91.8	91.8	91.7	91.8	92.0	91.9	92.4	92.6	93.3	93.9	94.0	94.6
62	Rubber manufactures, n.e.s.	94.6	94.7	94.5	94.2	94.7	94.3	94.4	94.5	95.0	94.9	94.4	94.4	91.7
64	Paper, paperboard, and articles of paper, pulp, and paperboard	85.6	85.7	85.8	85.1	85.2	83.7	83.6	83.5	83.7	84.4	87.4	86.2	86.1
66	Nonmetallic mineral manufactures, n.e.s.	100.7	100.9	101.3	100.9	100.8	100.9	100.8	100.9	101.1	101.2	101.6	101.2	100.9
68	Nonferrous metals	82.9	84.4	85.9	85.7	85.8	87.7	87.6	89.9	91.1	94.8	95.4	95.6	99.0
69	Manufactures of metals, n.e.s.	97.1	96.8	95.9	95.9	96.4	96.1	95.8	95.6	95.8	95.6	95.9	95.8	95.7
7	**Machinery and transport equipment**	91.2	91.3	90.9	90.6	90.6	90.3	89.9	89.9	89.9	89.9	89.8	89.7	89.7
72	Machinery specialized for particular industries	98.5	98.8	98.3	98.1	97.8	97.6	97.3	97.2	97.6	97.8	98.2	97.8	97.7
74	General industrial machines and parts, n.e.s., and machine parts	98.6	99.1	98.4	97.9	97.7	97.6	97.3	97.3	97.4	97.3	97.3	97.0	97.0
75	Computer equipment and office machines	66.6	65.9	64.4	63.7	63.6	63.1	62.0	61.8	61.6	61.4	61.4	61.7	61.6
76	Telecommunications and sound recording and reproducing apparatus and equipment	88.3	88.5	88.4	87.9	87.8	87.6	87.3	87.0	87.1	86.0	85.9	85.6	85.2
77	Electrical machinery and equipment	83.7	84.1	83.8	83.5	83.3	82.7	81.9	82.1	82.5	82.6	82.2	82.0	82.0
78	Road vehicles	101.9	102.0	101.9	102.0	102.3	102.3	102.4	102.4	102.2	102.4	102.4	102.3	102.4
85	Footwear	101.3	101.4	101.1	101.2	100.5	100.7	100.7	100.6	100.8	100.8	100.8	100.8	100.9
88	Photographic apparatus, equipment, and supplies, and optical goods, n.e.s.	91.9	92.1	91.8	91.4	91.4	91.3	91.2	91.1	91.4	92.2	92.5	92.5	92.1

– Data not available.

36. U.S. export price indexes by end-use category

[1995 = 100]

Category	1999												2000
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
ALL COMMODITIES	94.8	94.6	94.2	94.4	94.5	94.5	94.4	94.7	94.8	95.1	95.3	95.3	95.3
Foods, feeds, and beverages	91.5	89.4	87.3	88.2	89.0	88.9	86.7	87.9	87.6	87.4	86.7	86.0	86.2
Agricultural foods, feeds, and beverages	91.1	88.7	85.9	86.4	86.8	86.8	85.0	86.9	86.7	86.4	85.6	84.9	85.2
Nonagricultural (fish, beverages) food products	97.5	98.7	103.5	108.5	114.2	113.1	106.8	99.5	98.2	99.7	99.2	99.5	98.3
Industrial supplies and materials	86.8	86.8	86.5	86.8	87.2	87.5	88.3	89.0	89.5	90.4	91.2	91.7	91.8
Agricultural industrial supplies and materials	82.4	81.9	79.9	79.6	79.5	78.4	76.2	76.3	76.6	77.5	76.6	76.8	75.3
Fuels and lubricants	92.8	92.7	92.4	97.8	98.4	99.8	106.1	110.5	111.8	114.4	115.9	120.4	121.9
Nonagricultural supplies and materials, excluding fuel and building materials	85.7	85.7	85.5	85.3	85.7	86.0	86.6	87.0	87.5	88.3	89.2	89.3	89.4
Selected building materials	86.3	86.8	87.3	87.5	87.5	87.8	88.0	88.4	87.4	87.8	87.7	88.6	89.3
Capital goods	97.1	97.1	96.9	97.0	96.7	96.5	96.2	96.2	96.1	96.2	96.3	96.1	96.0
Electric and electrical generating equipment	99.1	99.1	99.1	99.1	98.9	99.0	98.2	98.0	98.3	98.3	98.4	98.4	98.1
Nonelectrical machinery	93.6	93.6	93.4	93.5	93.2	92.9	92.6	92.6	92.4	92.4	92.5	92.1	92.1
Automotive vehicles, parts, and engines	102.9	103.1	103.0	102.9	103.0	103.2	103.2	103.2	103.3	104.0	104.0	104.0	104.0
Consumer goods, excluding automotive	101.9	101.9	101.8	101.8	101.8	102.0	101.9	102.0	101.9	102.2	102.2	102.4	102.4
Nondurables, manufactured	102.1	102.3	102.1	102.0	102.0	102.1	102.0	102.0	102.1	102.4	102.5	102.9	102.6
Durables, manufactured	100.6	100.3	100.3	100.4	100.3	100.5	100.6	100.8	100.7	100.8	100.9	100.8	101.0
Agricultural commodities	89.2	87.1	84.5	84.9	85.2	85.0	83.1	84.7	84.6	84.5	83.7	83.1	83.1
Nonagricultural commodities	95.4	95.5	95.3	95.5	95.5	95.6	95.7	95.8	95.9	96.3	96.6	96.6	96.7

37. U.S. import price indexes by end-use category

[1995 = 100]

Category	1999												2000
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
ALL COMMODITIES	90.8	90.7	90.9	91.9	92.5	92.4	93.3	94.3	95.2	95.4	96.2	96.8	96.9
Foods, feeds, and beverages	95.9	93.3	93.0	94.0	94.8	93.7	92.8	92.5	92.3	91.4	93.0	94.7	93.5
Agricultural foods, feeds, and beverages	93.3	89.2	88.7	89.1	90.3	89.3	88.0	87.7	87.6	86.1	87.2	89.8	88.1
Nonagricultural (fish, beverages) food products	102.6	103.8	104.4	106.5	106.5	105.2	105.4	105.0	104.9	106.3	108.2	107.7	107.9
Industrial supplies and materials	82.6	82.5	84.8	89.0	91.5	91.8	96.1	99.9	103.1	104.3	106.9	109.5	110.2
Fuels and lubricants	68.1	67.2	73.9	86.7	93.4	93.2	105.4	116.7	126.0	128.1	132.4	141.2	141.9
Petroleum and petroleum products	62.0	61.7	70.3	84.6	90.8	91.2	103.5	115.6	125.2	127.3	132.4	141.4	143.7
Paper and paper base stocks	78.3	78.6	78.4	77.5	77.7	77.0	77.0	76.9	78.4	78.5	81.7	81.2	81.5
Materials associated with nondurable supplies and materials	87.5	87.3	87.5	87.4	87.3	87.4	87.0	86.9	87.7	88.3	88.8	89.0	89.3
Selected building materials	104.2	107.6	107.9	108.3	110.5	114.2	120.6	118.9	113.4	110.0	108.3	111.1	110.6
Unfinished metals associated with durable goods	86.6	86.6	86.9	86.7	87.3	88.3	87.7	89.0	89.7	93.0	94.4	94.8	97.6
Nonmetals associated with durable goods	88.8	88.6	88.2	87.3	87.3	87.0	86.7	86.7	87.3	87.5	87.5	87.3	86.8
Capital goods	84.5	84.5	83.7	83.3	83.0	82.6	81.9	81.9	82.0	81.9	81.8	81.6	81.6
Electric and electrical generating equipment	93.5	93.6	92.8	92.5	92.3	91.5	91.1	91.2	91.6	91.7	91.8	91.1	91.2
Nonelectrical machinery	81.5	81.5	80.7	80.2	79.9	79.5	78.7	78.7	78.8	78.6	78.5	78.4	78.3
Automotive vehicles, parts, and engines	101.4	101.5	101.4	101.5	101.8	101.7	101.8	101.9	101.9	102.0	102.0	102.0	102.1
Consumer goods, excluding automotive	98.1	98.4	98.0	97.7	97.6	97.5	97.4	97.4	97.7	97.5	97.5	97.4	97.3
Nondurables, manufactured	101.0	101.1	101.0	100.8	100.5	100.4	100.2	100.3	100.8	100.5	100.5	100.4	100.1
Durables, manufactured	95.2	95.2	94.8	94.4	94.5	94.4	94.3	94.1	94.2	94.1	94.2	94.1	93.9
Nonmanufactured consumer goods	97.7	100.9	99.0	98.9	98.8	98.0	98.3	99.1	99.9	100.0	98.8	99.8	101.1

38. U.S. international price indexes for selected categories of services

[1990 = 100, unless otherwise indicated]

Category	1998				1999			
	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.
Air freight (inbound) (9/90 = 100)	82.9	83.4	81.8	87.4	88.0	86.2	87.9	90.7
Air freight (outbound) (9/92 = 100)	97.2	96.0	95.8	95.2	92.7	92.8	92.7	89.5
Air passenger fares (U.S. carriers)	99.3	107.8	107.3	103.1	104.5	112.3	114.2	106.8
Air passenger fares (foreign carriers)	97.6	102.4	104.0	101.1	98.9	106.3	108.6	102.2
Ocean liner freight (inbound)	93.0	103.2	105.0	104.2	102.6	133.7	148.0	139.4

39. Indexes of productivity, hourly compensation, and unit costs, quarterly data seasonally adjusted

[1992 = 100]

Item	Quarterly indexes												
	1996	1997				1998				1999			
	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
Business													
Output per hour of all persons	105.9	106.3	107.1	108.1	108.4	109.7	109.8	110.7	111.9	112.7	113.0	114.3	115.6
Compensation per hour	111.6	112.5	113.2	114.6	116.4	117.8	119.4	121.2	122.7	124.2	125.7	127.1	128.3
Real compensation per hour	99.8	100.1	100.4	101.2	102.4	103.4	104.4	105.6	106.5	107.4	107.8	108.3	108.5
Unit labor costs	105.3	105.9	105.7	106.0	107.4	107.5	108.8	109.5	109.6	110.2	111.3	111.3	110.9
Unit nonlabor payments	113.9	114.5	115.9	116.0	114.1	114.2	112.6	112.1	112.1	112.1	110.9	111.5	113.5
Implicit price deflator	108.5	109.1	109.5	109.7	109.9	110.0	110.2	110.4	110.5	110.9	111.2	111.4	111.9
Nonfarm business													
Output per hour of all persons	105.8	106.1	106.9	107.8	108.1	109.3	109.5	110.4	111.5	112.2	112.4	113.8	115.2
Compensation per hour	111.2	112.2	112.9	114.1	115.9	117.2	118.8	120.6	122.0	123.3	124.7	126.1	127.4
Real compensation per hour	99.5	99.8	100.1	100.8	101.9	102.9	103.9	105.1	105.9	106.6	106.9	107.5	107.8
Unit labor costs	105.0	105.7	105.6	105.8	107.2	107.3	108.5	109.3	109.4	109.8	111.0	110.9	110.6
Unit nonlabor payments	114.4	115.0	116.6	117.0	115.3	115.8	114.1	113.1	112.7	113.1	112.2	112.9	114.9
Implicit price deflator	108.4	109.1	109.6	109.9	110.1	110.4	110.5	110.7	110.6	111.0	111.4	111.6	112.2
Nonfinancial corporations													
Output per hour of all employees	109.6	110.1	110.7	112.4	113.2	114.2	115.3	117.0	117.9	119.1	120.1	121.3	–
Compensation per hour	110.3	111.2	112.0	113.3	115.1	116.4	118.0	119.8	121.3	122.7	124.2	125.5	–
Real compensation per hour	98.7	98.9	99.3	100.0	101.2	102.2	103.2	104.4	105.3	106.1	106.5	107.0	–
Total unit costs	100.4	100.7	100.8	100.3	100.8	100.8	101.2	101.2	101.8	101.7	102.1	102.4	–
Unit labor costs	100.6	101.0	101.1	100.7	101.6	101.9	102.3	102.4	102.9	103.0	103.4	103.5	–
Unit nonlabor costs	99.9	99.8	99.9	99.2	98.6	98.0	98.2	98.0	99.2	98.3	98.7	99.6	–
Unit profits	153.9	155.6	156.2	161.1	155.3	153.7	150.1	152.6	145.3	149.4	148.4	144.7	–
Unit nonlabor payments	113.0	113.4	113.6	114.3	112.4	111.5	110.8	111.3	110.4	110.8	110.8	110.6	–
Implicit price deflator	104.8	105.3	105.4	105.4	105.3	105.2	105.2	105.5	105.5	105.7	105.9	105.9	–
Manufacturing													
Output per hour of all persons	115.7	116.9	118.4	120.9	122.0	122.7	123.9	126.3	128.2	130.4	132.2	133.6	137.1
Compensation per hour	110.3	111.8	112.6	113.6	115.5	117.0	118.6	120.6	121.4	122.8	124.5	126.3	127.7
Real compensation per hour	98.7	99.5	99.9	100.3	101.5	102.7	103.7	105.1	105.4	106.2	106.8	107.6	108.0
Unit labor costs	95.4	95.7	95.1	94.0	94.6	95.3	95.7	95.5	94.7	94.1	94.2	94.5	93.1

– Data not available.

40. Annual indexes of multifactor productivity and related measures, selected years

[1992 = 100]

Item	1960	1970	1980	1989	1990	1991	1993	1994	1995	1996	1997
Private business											
Productivity:											
Output per hour of all persons	50.8	70.1	83.8	95.5	96.1	96.7	100.1	100.6	101.0	103.7	105.2
Output per unit of capital services	117.3	117.1	107.3	103.8	102.1	98.6	100.7	102.3	101.9	102.3	102.6
Multifactor productivity	70.7	86.5	95.3	100.0	99.6	98.1	100.1	100.6	100.7	102.4	103.1
Output	34.0	51.6	72.6	97.8	98.6	96.9	102.7	107.0	110.0	114.7	120.1
Inputs:											
Labor input	60.6	68.3	80.5	99.6	100.2	99.0	102.9	107.1	109.8	112.0	116.2
Capital services	29.0	44.1	67.7	94.2	96.5	98.3	102.0	104.6	108.0	112.2	117.1
Combined units of labor and capital input	48.1	59.7	76.2	97.8	99.0	98.7	102.6	106.3	109.3	112.1	116.5
Capital per hour of all persons	43.3	59.9	78.1	92.0	94.1	98.1	99.4	98.3	99.2	101.4	102.6
Private nonfarm business											
Productivity:											
Output per hour of all persons	54.3	72.2	85.6	95.9	96.3	96.9	100.1	100.6	101.2	103.7	104.9
Output per unit of capital services	126.1	124.1	111.4	104.6	102.6	98.8	100.8	102.1	101.8	102.1	102.1
Multifactor productivity	74.9	89.4	97.6	100.5	99.8	98.4	100.1	100.5	100.8	102.3	102.7
Output	33.7	51.8	73.1	98.1	98.8	97.0	103.0	107.1	110.4	115.0	120.2
Inputs:											
Labor input	56.4	66.6	79.3	99.5	100.2	98.8	103.1	107.2	109.9	112.3	116.6
Capital services	26.7	41.8	65.6	93.9	96.3	98.2	102.2	104.8	108.4	112.6	117.7
Combined units of labor and capital input	45.0	58.0	74.9	97.7	99.0	98.6	102.9	106.5	109.5	112.4	117.0
Capital per hour of all persons	43.0	58.2	76.8	91.7	93.8	98.1	99.3	98.5	99.4	101.6	102.8
Manufacturing											
Productivity:											
Output per hour of all persons	42.1	54.5	70.4	90.7	93.0	95.1	102.2	105.3	109.4	113.8	–
Output per unit of capital services	125.6	116.3	101.5	103.5	101.3	97.3	101.8	105.2	106.8	107.0	–
Multifactor productivity	72.9	84.2	87.3	100.4	99.8	98.6	101.2	104.4	108.4	110.7	–
Output	38.7	56.8	75.7	97.1	97.5	95.5	103.6	109.1	113.8	118.0	–
Inputs:											
Hours of all persons	92.0	104.2	107.5	107.1	104.8	100.4	101.4	103.6	104.0	103.7	–
Capital services	30.9	48.8	74.6	93.8	96.3	98.2	101.7	103.6	106.6	110.3	–
Energy	51.5	85.4	92.5	96.8	99.9	100.1	103.7	107.3	109.5	107.0	–
Nonenergy materials	39.1	46.0	74.5	88.3	91.3	93.1	103.0	104.4	101.4	105.4	–
Purchased business services	27.3	47.4	71.9	88.9	91.8	91.9	104.3	107.8	111.0	111.6	–
Combined units of all factor inputs	53.1	67.4	86.7	96.7	97.7	96.9	102.3	104.5	105.0	106.6	–

– Data not available.

41. Annual indexes of productivity, hourly compensation, unit costs, and prices, selected years

[1992 = 100]

Item	1960	1970	1980	1989	1990	1991	1993	1994	1995	1996	1997	1998	1999
Business													
Output per hour of all persons	48.0	66.2	79.8	93.3	94.5	95.9	100.1	101.4	102.2	105.2	107.5	110.5	113.9
Compensation per hour	13.6	23.5	54.3	85.7	90.6	94.9	102.4	104.5	106.7	110.1	114.2	120.3	126.3
Real compensation per hour	59.9	79.0	89.7	95.8	96.4	97.4	99.9	99.7	99.1	99.6	101.1	105.1	108.1
Unit labor costs	28.4	35.6	68.1	91.9	95.9	99.0	102.3	103.0	104.4	104.7	106.2	108.8	110.9
Unit nonlabor payments	25.5	32.0	62.1	92.5	94.6	97.4	102.9	106.9	109.8	113.5	115.1	112.7	112.0
Implicit price deflator	27.3	34.3	65.9	92.1	95.4	98.4	102.5	104.4	106.4	107.9	109.5	110.3	111.3
Nonfarm business													
Output per hour of all persons	51.2	68.0	81.3	93.5	94.6	96.1	100.1	101.4	102.4	105.2	107.2	110.2	113.4
Compensation per hour	14.3	23.7	54.7	85.8	90.5	94.9	102.1	104.3	106.5	109.8	113.8	119.7	125.4
Real compensation per hour	62.8	79.7	90.3	95.8	96.3	97.4	99.6	99.5	98.9	99.3	100.7	104.5	107.3
Unit labor costs	27.9	34.9	67.2	91.7	95.7	98.8	102.1	102.9	104.0	104.4	106.1	108.6	110.6
Unit nonlabor payments	24.9	31.7	61.1	91.9	94.2	97.5	103.4	107.4	110.8	113.8	115.9	113.9	113.3
Implicit price deflator	26.8	33.7	65.0	91.8	95.1	98.3	102.6	104.5	106.5	107.8	109.7	110.5	111.6
Nonfinancial corporations													
Output per hour of all employees	52.6	66.3	76.9	93.8	94.9	96.9	101.5	104.3	105.6	108.4	111.7	116.2	–
Compensation per hour	15.6	25.3	56.6	87.0	91.4	95.5	102.1	104.3	106.2	109.0	113.0	119.0	–
Real compensation per hour	68.6	85.1	93.6	97.2	97.2	98.0	99.5	99.5	98.6	98.6	100.0	103.9	–
Total unit costs	28.9	37.4	72.5	93.6	97.1	99.8	100.3	100.0	100.6	100.4	100.6	101.3	–
Unit labor costs	29.7	38.2	73.7	92.7	96.4	98.6	100.6	100.0	100.5	100.5	101.1	102.4	–
Unit nonlabor costs	26.8	35.4	69.4	95.9	99.0	102.9	99.6	100.2	100.9	100.1	99.4	98.4	–
Unit profits	53.2	47.1	72.6	99.0	95.5	94.0	112.5	130.5	137.5	151.5	157.1	150.4	–
Unit nonlabor payments	33.2	38.3	70.2	96.6	98.1	100.7	102.7	107.6	109.8	112.6	113.4	111.0	–
Implicit price deflator	30.9	38.2	72.5	94.1	97.0	99.3	101.3	102.6	103.7	104.7	105.3	105.3	–
Manufacturing													
Output per hour of all persons	42.1	54.4	70.4	90.7	93.0	95.1	102.2	105.3	109.4	113.8	119.6	125.3	133.3
Compensation per hour	14.9	23.7	55.6	86.6	90.8	95.6	102.7	105.6	107.9	109.3	113.4	119.4	125.3
Real compensation per hour	65.4	79.7	91.8	96.8	96.6	98.0	100.2	100.8	100.2	98.9	100.4	104.3	107.2
Unit labor costs	35.3	43.6	78.9	95.5	97.6	100.4	100.5	100.3	98.6	96.0	94.8	95.3	94.0
Unit nonlabor payments	26.7	29.4	79.9	95.2	99.6	98.9	101.1	102.9	107.2	110.2	–	–	–
Implicit price deflator	30.1	34.9	79.5	95.3	98.8	99.5	100.9	101.9	103.9	104.7	–	–	–

– Data not available.

42. Annual indexes of output per hour for selected 3-digit SIC industries

[1987 = 100]

Industry	SIC	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Mining											
Copper ores	102	109.2	106.6	102.7	100.5	115.2	118.1	126.0	117.2	116.5	118.9
Gold and silver ores	104	101.5	113.3	122.3	127.4	141.6	159.8	160.8	144.2	138.3	158.0
Bituminous coal and lignite mining	122	111.7	117.3	118.7	122.4	133.0	141.2	148.1	155.9	168.0	176.8
Crude petroleum and natural gas	131	101.0	98.0	97.0	97.9	102.1	105.9	112.4	119.4	123.7	126.1
Crushed and broken stone	142	101.3	98.7	102.2	99.8	105.0	103.6	108.7	105.4	107.2	114.8
Manufacturing											
Meat products	201	100.1	99.3	97.1	99.7	104.6	104.3	101.2	102.4	97.7	–
Dairy products	202	108.4	107.8	107.3	108.4	111.5	109.7	111.9	116.6	115.9	–
Preserved fruits and vegetables	203	97.0	97.8	95.6	99.2	100.6	106.8	107.6	109.1	109.4	–
Grain mill products	204	101.3	107.6	105.3	104.9	107.7	109.1	108.4	115.3	107.7	–
Bakery products	205	96.8	96.1	92.7	90.6	93.8	94.4	96.4	97.3	95.4	–
Sugar and confectionery products	206	99.4	101.5	102.8	101.3	99.1	103.9	105.4	107.5	112.7	–
Fats and oils	207	108.9	116.4	118.1	120.1	114.1	112.6	111.8	120.3	111.1	–
Beverages	208	106.0	112.7	117.7	120.5	127.6	127.0	130.9	134.3	135.7	–
Miscellaneous food and kindred products	209	107.0	99.3	99.3	101.6	101.6	105.3	101.0	103.1	107.6	–
Cigarettes	211	101.2	109.0	113.2	107.6	111.6	106.5	126.6	142.9	147.7	–
Broadwoven fabric mills, cotton	221	99.6	99.8	103.1	111.2	110.3	117.8	122.1	134.0	137.8	–
Broadwoven fabric mills, manmade	222	99.2	106.3	111.3	116.2	126.2	131.7	142.5	145.2	151.1	–
Narrow fabric mills	224	108.4	92.7	96.5	99.6	112.9	111.4	120.1	118.9	127.5	–
Knitting mills	225	96.3	108.0	107.5	114.1	119.5	128.1	134.3	138.6	150.8	–
Textile finishing, except wool	226	90.3	88.7	83.4	79.9	78.6	79.3	81.2	78.5	79.8	–
Carpets and rugs	227	98.6	97.8	93.2	89.2	96.1	97.1	93.3	95.8	101.2	–
Yarn and thread mills	228	102.1	104.2	110.2	111.4	119.6	126.6	130.7	137.4	146.6	–
Miscellaneous textile goods	229	101.6	109.1	109.2	104.6	106.5	110.4	118.5	123.7	125.4	–
Men's and boys' suits and coats	231	105.1	97.7	93.9	90.2	89.0	97.4	97.7	92.5	96.5	–
Men's and boys' furnishings	232	100.1	100.1	102.1	108.4	109.1	108.4	111.7	123.4	134.0	–
Women's and misses' outerwear	233	101.4	96.8	104.1	104.3	109.4	121.8	127.4	135.5	144.2	–
Women's and children's undergarments	234	105.4	94.6	102.1	113.6	117.4	124.5	138.0	161.3	171.6	–
Hats, caps, and millinery	235	99.0	96.4	89.2	91.1	93.6	87.2	77.7	84.3	80.9	–
Miscellaneous apparel and accessories	238	101.3	88.4	90.6	91.8	91.3	94.0	105.5	116.8	121.3	–
Miscellaneous fabricated textile products	239	96.6	95.7	99.9	100.7	107.5	108.5	107.8	109.2	106.3	–
Logging	241	93.7	89.4	86.3	86.0	96.2	88.6	87.8	86.0	86.0	–
Sawmills and planing mills	242	100.7	99.6	99.8	102.6	108.1	101.9	103.3	110.2	114.9	–
Millwork, plywood, and structural members	243	98.9	97.1	98.0	98.0	99.9	97.0	94.5	92.7	92.2	–
Wood containers	244	103.1	108.8	111.2	113.1	109.4	100.1	100.9	106.1	106.5	–
Wood buildings and mobile homes	245	97.8	98.8	103.1	103.0	103.1	103.8	98.3	97.0	97.0	–
Miscellaneous wood products	249	95.9	102.4	107.7	110.5	114.2	115.3	111.8	115.4	114.2	–
Household furniture	251	99.4	102.0	104.5	107.1	110.5	110.6	112.5	116.9	122.2	–
Office furniture	252	94.3	97.5	95.0	94.1	102.5	103.2	100.5	101.1	106.8	–
Public building and related furniture	253	109.6	113.7	119.8	120.2	140.6	161.0	157.4	173.3	179.9	–
Partitions and fixtures	254	95.7	92.4	95.6	93.0	102.7	107.4	98.9	101.2	97.3	–
Miscellaneous furniture and fixtures	259	103.6	101.9	103.5	102.1	99.5	103.6	104.7	110.0	113.6	–
Pulp mills	261	99.6	107.4	116.7	128.3	137.3	122.5	128.9	131.9	132.7	–
Paper mills	262	103.9	103.6	102.3	99.2	103.3	102.4	110.2	119.0	111.9	–
Paperboard mills	263	105.5	101.9	100.6	101.4	104.4	108.4	114.9	119.5	118.7	–
Paperboard containers and boxes	265	99.7	101.5	101.3	103.4	105.2	107.9	108.4	105.1	106.5	–
Miscellaneous converted paper products	267	101.1	101.6	101.4	105.4	105.5	108.0	110.8	113.4	114.6	–
Newspapers	271	96.9	95.2	90.6	85.8	81.5	79.4	79.9	79.0	77.1	–
Periodicals	272	97.9	98.3	93.9	89.5	92.9	89.6	82.4	88.5	90.9	–
Books	273	99.1	94.1	96.6	100.8	97.7	103.5	103.0	101.5	100.5	–
Miscellaneous publishing	274	96.7	89.0	92.2	95.9	105.8	104.5	97.5	94.8	93.4	–
Commercial printing	275	100.0	101.1	102.5	102.0	108.0	106.9	106.5	107.2	108.7	–
Manifold business forms	276	98.7	89.7	93.0	89.1	94.5	91.1	82.0	76.9	74.5	–
Greeting cards	277	100.1	109.1	100.6	92.7	96.7	91.4	89.0	92.5	91.8	–
Blankbooks and bookbinding	278	95.6	94.2	99.4	96.1	103.6	98.7	105.4	108.7	115.0	–
Printing trade services	279	99.9	94.3	99.3	100.6	112.0	115.3	111.0	116.7	126.7	–
Industrial inorganic chemicals	281	105.7	104.2	106.7	109.6	109.6	105.4	102.0	109.2	110.4	–
Plastics materials and synthetics	282	98.8	99.7	100.9	100.0	107.5	111.9	125.0	128.7	125.1	–
Drugs	283	101.1	102.9	103.9	104.7	99.6	100.0	105.5	108.9	112.9	–
Soaps, cleaners, and toilet goods	284	102.0	100.7	103.8	105.3	104.4	108.7	111.2	118.6	121.4	–
Paints and allied products	285	101.4	103.3	106.3	104.3	102.9	108.8	116.7	118.0	124.2	–
Industrial organic chemicals	286	109.8	110.3	101.4	95.8	94.5	92.2	100.0	98.8	98.4	–
Agricultural chemicals	287	103.8	104.5	105.0	99.9	99.9	104.3	105.7	109.0	111.4	–
Miscellaneous chemical products	289	95.4	95.2	97.3	96.1	101.8	107.1	105.7	107.8	110.2	–
Petroleum refining	291	105.3	109.6	109.2	106.6	111.3	120.1	123.8	132.3	142.0	–
Asphalt paving and roofing materials	295	98.3	95.3	98.0	94.1	100.4	108.0	104.9	111.2	114.4	–
Miscellaneous petroleum and coal products	299	98.4	101.9	94.8	90.6	101.5	104.2	96.3	87.4	86.4	–

See footnotes at end of table.

42. Continued—Annual indexes of output per hour for selected 3-digit SIC industries

[1987 = 100]

Industry	SIC	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Tires and inner tubes	301	102.9	103.8	103.0	102.4	107.8	116.5	124.1	131.1	138.8	–
Hose and belting and gaskets and packing	305	103.7	96.3	96.1	92.4	97.8	99.7	102.7	104.6	107.2	–
Fabricated rubber products, n.e.c.	306	104.3	105.5	109.2	110.1	115.3	123.2	119.2	121.6	120.3	–
Miscellaneous plastics products, n.e.c.	308	100.5	101.7	105.6	108.1	114.1	116.4	120.4	120.7	124.9	–
Footwear, except rubber	314	101.3	101.1	101.1	94.4	104.2	105.2	113.0	117.1	125.8	–
Luggage	316	93.7	104.8	106.2	100.3	90.7	89.5	92.3	90.5	108.5	–
Handbags and personal leather goods	317	98.5	93.1	96.5	98.7	111.2	97.8	86.8	81.8	83.9	–
Flat glass	321	91.9	90.7	84.5	83.6	92.7	97.7	97.6	99.6	104.2	–
Glass and glassware, pressed or blown	322	100.6	100.2	104.8	102.3	108.9	108.7	112.9	115.7	121.9	–
Products of purchased glass	323	95.9	90.1	92.6	97.7	101.5	106.2	105.9	106.1	124.5	–
Cement, hydraulic	324	103.2	110.2	112.4	108.3	115.1	119.9	125.6	124.3	127.9	–
Structural clay products	325	98.8	103.1	109.6	109.8	111.5	105.8	113.0	111.6	119.5	–
Pottery and related products	326	99.6	97.1	98.6	95.8	99.5	100.3	108.4	109.3	119.4	–
Concrete, gypsum, and plaster products	327	100.8	102.4	102.3	101.2	102.5	104.6	101.5	104.5	107.5	–
Miscellaneous nonmetallic mineral products	329	103.0	95.5	95.4	94.0	104.3	104.5	106.3	107.8	111.3	–
Blast furnace and basic steel products	331	112.6	108.0	109.6	107.8	117.1	133.5	142.4	142.7	153.6	–
Iron and steel foundries	332	104.0	105.4	106.1	104.5	107.2	112.1	113.0	112.7	115.7	–
Primary nonferrous metals	333	107.8	106.1	102.3	110.9	102.0	108.0	105.4	111.1	111.0	–
Nonferrous rolling and drawing	335	95.5	93.6	92.7	90.9	95.8	98.2	101.1	99.1	103.9	–
Nonferrous foundries (castings)	336	102.6	105.1	104.0	103.6	103.6	108.5	112.1	117.8	122.6	–
Miscellaneous primary metal products	339	106.6	105.0	113.7	109.1	114.5	111.3	134.5	152.2	149.6	–
Metal cans and shipping containers	341	106.5	108.5	117.6	122.9	127.8	132.3	140.9	144.2	155.2	–
Cutlery, handtools, and hardware	342	97.8	101.7	97.3	96.8	100.1	104.0	109.2	111.3	117.9	–
Plumbing and heating, except electric	343	103.7	101.5	102.6	102.0	98.4	102.0	109.1	109.2	118.6	–
Fabricated structural metal products	344	100.4	96.9	98.8	100.0	103.9	104.8	107.7	105.8	106.7	–
Screw machine products, bolts, etc.	345	98.5	96.1	96.1	97.9	102.3	104.4	107.2	109.7	110.4	–
Metal forgings and stampings	346	101.5	99.8	95.6	92.9	103.7	108.7	108.5	109.3	113.7	–
Metal services, n.e.c.	347	108.3	102.4	104.7	99.4	111.6	120.6	123.0	127.7	127.5	–
Ordnance and accessories, n.e.c.	348	97.7	89.8	82.1	81.5	88.6	84.6	83.6	87.6	87.4	–
Miscellaneous fabricated metal products	349	101.4	95.9	97.5	97.3	100.9	101.8	103.0	106.4	108.6	–
Engines and turbines	351	106.8	110.7	106.5	105.8	103.3	109.2	122.3	122.7	136.9	–
Farm and garden machinery	352	106.3	110.7	116.5	112.9	113.9	118.6	125.0	134.7	136.6	–
Construction and related machinery	353	106.5	108.3	107.0	99.1	102.0	108.2	117.7	122.1	123.8	–
Metalworking machinery	354	101.0	103.5	101.1	96.4	104.3	107.4	109.9	114.8	114.7	–
Special industry machinery	355	104.6	108.3	107.5	108.3	106.0	113.6	121.2	132.3	134.7	–
General industrial machinery	356	106.0	101.6	101.5	101.6	101.6	104.8	106.7	109.0	110.0	–
Refrigeration and service machinery	358	102.1	106.0	103.6	100.7	104.9	108.6	110.7	112.7	114.4	–
Industrial machinery, n.e.c.	359	106.5	107.1	107.3	109.0	116.9	118.4	127.3	138.8	142.1	–
Electric distribution equipment	361	105.4	105.0	106.3	106.5	119.6	122.2	131.8	143.0	145.1	–
Electrical industrial apparatus	362	104.5	107.3	107.5	106.8	116.8	132.5	134.5	150.4	154.1	–
Household appliances	363	103.0	104.7	105.8	106.5	115.0	123.4	131.4	127.3	126.7	–
Electric lighting and wiring equipment	364	101.9	100.2	99.9	97.5	105.7	107.8	113.4	113.7	117.4	–
Communications equipment	366	110.4	107.0	120.9	123.8	145.4	149.0	164.8	169.6	189.6	–
Miscellaneous electrical equipment & supplies	369	102.8	99.6	90.6	98.6	101.3	108.2	110.5	114.1	123.0	–
Motor vehicles and equipment	371	103.2	103.3	102.4	96.6	104.2	105.3	107.1	104.1	104.1	–
Aircraft and parts	372	100.5	98.2	98.8	108.1	112.2	115.1	109.5	107.8	112.6	–
Ship and boat building and repairing	373	99.4	97.6	103.7	96.3	102.7	106.2	103.8	97.9	100.5	–
Railroad equipment	374	113.5	135.3	141.1	146.9	147.9	151.0	152.5	150.0	146.3	–
Motorcycles, bicycles, and parts	375	92.6	94.6	93.8	99.8	108.4	130.9	125.1	120.3	123.3	–
Guided missiles, space vehicles, parts	376	104.8	110.5	115.7	109.8	109.3	120.9	117.5	118.7	127.3	–
Search and navigation equipment	381	104.8	105.8	112.7	118.9	122.1	129.1	132.1	149.5	141.8	–
Measuring and controlling devices	382	103.1	101.3	106.1	112.9	119.9	124.0	133.8	146.4	150.4	–
Medical instruments and supplies	384	104.4	107.2	116.3	118.4	123.3	126.9	126.1	130.9	140.4	–
Ophthalmic goods	385	112.6	123.3	121.2	125.1	144.5	157.8	160.6	167.2	188.9	–
Photographic equipment & supplies	386	105.6	113.0	107.8	110.2	116.4	126.9	132.7	129.5	129.0	–
Jewelry, silverware, and plated ware	391	100.1	102.9	99.3	95.8	96.7	96.7	99.5	100.2	103.2	–
Musical instruments	393	101.8	96.1	97.1	96.9	96.0	95.6	88.7	86.9	78.9	–
Toys and sporting goods	394	104.8	106.0	108.1	109.7	104.9	114.2	109.7	113.6	120.0	–
Pens, pencils, office, and art supplies	395	108.6	113.3	118.7	117.3	111.7	112.0	130.2	135.4	144.4	–
Costume jewelry and notions	396	102.0	93.8	105.3	106.7	110.8	115.8	129.0	143.7	142.3	–
Miscellaneous manufactures	399	104.5	102.8	107.9	109.9	109.6	107.8	106.2	108.2	113.5	–
Transportation											
U.S. postal service[1]	431	99.9	99.7	104.0	103.7	104.5	107.1	106.6	106.5	104.7	108.
Air transportation [2]	4512,13,22 (pts.)	99.5	95.8	92.9	92.5	96.9	100.2	105.7	108.6	111.1	112.
Communications and utilities											
Telephone communications	481	106.2	111.6	113.3	119.8	127.7	135.5	142.2	148.1	159.4	160
Radio and television broadcasting	483	103.1	106.2	104.9	106.1	108.3	106.7	110.1	109.6	105.9	101
Cable and other pay TV services	484	102.0	99.7	92.5	87.5	88.3	85.1	83.3	84.3	81.6	84.
Electric utilities	491,3 (pt.)	104.9	107.7	110.1	113.4	115.2	120.6	126.8	135.0	146.5	150.
Gas utilities	492,3 (pt.)	105.5	103.5	94.8	94.0	95.3	107.0	102.2	107.5	116.0	119.

See footnotes at end of table.

42. Continued—Annual indexes of output per hour for selected 3-digit SIC industries

[1987 = 100]

Industry	SIC	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Wholesale and retail trade											
Lumber and other building materials dealers	521	101.0	99.1	103.6	101.3	105.4	110.3	117.9	117.0	121.5	124.0
Paint, glass, and wallpaper stores	523	102.8	101.7	106.0	99.4	106.5	112.1	124.6	126.8	132.1	132.3
Hardware stores	525	108.6	115.2	110.5	102.5	107.2	106.5	114.2	110.7	115.2	115.8
Retail nurseries, lawn and garden supply stores	526	106.7	103.4	83.9	88.5	100.4	106.6	116.6	117.1	136.6	119.3
Department stores	531	99.2	97.0	94.2	98.2	100.9	108.1	111.2	113.4	121.0	125.7
Variety stores	533	101.9	124.4	151.2	154.2	167.7	185.5	191.8	205.8	232.6	246.1
Miscellaneous general merchandise stores	539	100.8	109.8	116.4	121.8	136.1	159.7	160.9	164.0	165.1	165.7
Grocery stores	541	98.9	95.4	94.6	93.7	93.3	93.0	92.9	91.9	90.2	89.1
Meat and fish (seafood) markets	542	99.0	97.6	96.8	88.4	95.8	95.8	95.3	95.5	88.8	90.8
Retail bakeries	546	89.8	83.3	89.7	94.7	94.0	88.0	90.1	91.2	87.3	97.6
New and used car dealers	551	103.4	102.5	106.1	104.1	106.5	107.6	108.7	107.1	108.2	107.3
Auto and home supply stores	553	103.2	101.6	102.7	99.0	100.0	100.9	107.0	112.6	113.9	109.7
Gasoline service stations	554	103.0	105.2	102.6	104.3	109.7	113.3	116.5	120.4	117.2	116.5
Men's and boys' wear stores	561	106.0	109.6	113.7	119.2	118.2	115.6	118.1	117.9	126.3	139.1
Women's clothing stores	562	97.8	99.5	101.5	103.0	112.2	116.8	115.8	122.8	133.6	134.1
Family clothing stores	565	102.0	104.9	104.5	106.4	111.7	114.9	121.2	135.2	140.5	143.2
Shoe stores	566	102.7	107.2	106.1	105.1	111.5	112.4	124.4	131.5	142.6	143.5
Miscellaneous apparel and accessory stores	569	96.3	95.2	88.6	78.8	89.1	95.2	105.4	131.2	139.9	128.0
Furniture and homefurnishings stores	571	98.6	100.9	101.8	101.5	108.4	108.5	110.5	114.7	122.5	125.7
Household appliance stores	572	98.5	103.5	102.8	105.2	113.9	115.0	116.8	131.6	132.0	149.4
Radio, television, computer, and music stores	573	118.6	114.6	119.6	128.3	137.8	153.4	178.8	200.0	209.3	220.4
Eating and drinking places	581	102.8	102.2	104.0	103.1	102.5	101.7	98.9	97.6	95.2	93.7
Drug and proprietary stores	591	101.9	102.5	103.6	104.7	103.6	104.8	104.5	105.2	107.5	113.8
Liquor stores	592	98.2	101.1	105.2	105.9	108.4	100.1	98.1	102.0	110.3	107.8
Used merchandise stores	593	105.3	104.9	100.3	98.6	110.4	110.4	111.6	111.6	121.6	122.1
Miscellaneous shopping goods stores	594	100.7	104.2	104.2	105.0	102.7	106.2	111.5	117.2	119.5	124.5
Nonstore retailers	596	105.6	110.8	108.8	109.3	122.1	121.8	130.6	125.7	138.3	148.0
Fuel dealers	598	95.6	92.0	84.4	85.3	84.4	92.2	99.7	112.3	113.3	106.5
Retail stores, n.e.c.	599	105.9	103.1	113.7	103.2	111.6	115.5	121.3	120.5	130.6	137.8
Finance and services											
Commercial banks	602	102.8	104.8	107.7	110.1	111.0	118.9	122.3	127.6	130.9	134.1
Hotels and motels	701	97.6	95.0	96.1	99.1	107.8	106.2	109.6	110.1	109.7	107.9
Laundry, cleaning, and garment services	721	97.2	99.7	101.8	99.2	98.3	98.9	104.0	105.5	108.7	108.1
Photographic studios, portrait	722	100.1	94.9	96.6	92.8	97.7	105.9	117.4	129.3	126.4	135.4
Beauty shops	723	95.1	99.6	96.8	94.8	99.6	95.7	99.8	103.5	106.3	108.9
Barber shops	724	108.8	111.6	100.2	94.1	112.1	120.8	117.7	114.6	127.6	153.4
Funeral services and crematories	726	102.5	97.9	90.9	89.5	103.2	98.2	103.8	99.7	97.1	101.3
Automotive repair shops	753	105.7	108.1	106.9	98.7	103.3	104.0	112.3	119.5	114.1	115.8
Motion picture theaters	783	107.1	114.3	115.8	116.0	110.8	109.8	106.5	101.4	100.4	100.8

[1] Refers to output per full-time equivalent employee year on fiscal basis.

[2] Refers to output per employee.

n.e.c. = not elsewhere classified.

NOTE: Dash indicates data not available.

43. Unemployment rates, approximating U.S. concepts, in nine countries, quarterly data seasonally adjusted

Country	Annual average		1997	1998				1999		
	1997	1998	IV	I	II	III	IV	I	II	III
United States	4.9	4.5	4.7	4.7	4.4	4.5	4.4	4.3	4.3	4.2
Canada	9.2	8.3	8.9	8.6	8.4	8.3	8.0	7.8	8.0	7.6
Australia	8.6	8.0	8.3	8.1	8.0	8.1	7.7	7.4	7.4	7.2
Japan	3.4	4.1	3.5	3.7	4.2	4.3	4.4	4.7	4.8	4.8
France	12.4	11.7	12.3	12.0	11.7	11.7	11.5	11.3	11.2	11.1
Germany	9.9	9.4	10.0	9.9	9.5	9.1	9.1	9.0	9.0	9.1
Italy[1]	12.3	12.3	12.3	12.2	12.3	12.4	12.4	12.3	12.1	–
Sweden	10.1	8.4	9.1	8.8	8.6	8.5	7.7	7.4	7.0	7.1
United Kingdom	7.0	6.3	6.6	6.4	6.3	6.3	6.3	6.3	6.1	5.9

[1] Quarterly rates are for the first month of the quarter.

– Data not available.

NOTE: Quarterly figures for France, Germany, and the United Kingdom are calculated by applying annual adjustment factors to current published data, and therefore should be viewed as less precise indicators of unemployment under U.S. concepts than the annual figures. See "Notes on the data" for information on breaks in series. For further qualifications and historical data, see *Comparative Civilian Labor Force Statistics, Ten Countries, 1959–1998* (Bureau of Labor Statistics, Oct. 22, 1999).

44. Annual data: Employment status of the working-age population, approximating U.S. concepts, 10 countries

[Numbers in thousands]

Employment status and country	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Civilian labor force										
United States[1]	123,869	125,840	126,346	128,105	129,200	131,056	132,304	133,943	136,297	137,673
Canada	14,151	14,329	14,408	14,482	14,663	14,832	14,928	15,145	15,354	15,632
Australia	8,228	8,444	8,490	8,562	8,619	8,776	9,001	9,127	9,221	9,347
Japan	61,920	63,050	64,280	65,040	65,470	65,780	65,990	66,450	67,200	67,240
France	24,170	24,300	24,490	24,550	24,650	24,760	24,820	25,080	25,140	25,390
Germany[2]	28,840	29,410	39,120	39,040	39,130	39,210	39,050	39,180	39,450	39,430
Italy	22,530	22,670	22,940	22,910	22,760	22,640	22,700	22,820	22,850	23,000
Netherlands	6,430	6,640	6,750	6,950	7,090	7,190	7,270	7,370	7,530	7,720
Sweden	4,552	4,597	4,591	4,520	4,443	4,418	4,460	4,459	4,418	4,402
United Kingdom	28,580	28,730	28,610	28,410	28,310	28,280	28,480	28,620	28,760	28,870
Participation rate[3]										
United States[1]	66.5	66.5	66.2	66.4	66.3	66.6	66.6	66.8	67.1	67.1
Canada	67.5	67.3	66.7	65.9	65.5	65.3	64.8	64.9	64.8	65.1
Australia	64.0	64.6	64.1	63.9	63.6	63.9	64.6	64.6	64.3	64.4
Japan	62.2	62.6	63.2	63.4	63.3	63.1	62.9	63.0	63.2	62.8
France	56.1	56.0	56.0	55.8	55.6	55.5	55.2	55.4	55.2	55.6
Germany[2]	55.2	55.3	58.9	58.3	58.0	57.6	57.2	57.4	57.6	57.6
Italy	47.3	47.2	47.7	47.5	48.1	47.5	47.5	47.7	47.7	47.8
Netherlands	54.7	56.1	56.5	57.8	58.5	59.0	59.3	59.8	60.7	62.0
Sweden	67.3	67.4	67.0	65.7	64.5	63.7	64.1	64.0	63.4	63.1
United Kingdom	64.0	64.1	63.7	63.1	62.8	62.5	62.7	62.7	62.8	62.7
Employed										
United States[1]	117,342	118,793	117,718	118,492	120,259	123,060	124,900	126,708	129,558	131,463
Canada	13,086	13,165	12,916	12,842	13,015	13,292	13,506	13,676	13,941	14,326
Australia	7,720	7,859	7,676	7,637	7,680	7,921	8,235	8,344	8,429	8,597
Japan	60,500	61,710	62,920	63,620	63,810	63,860	63,890	64,200	64,900	64,450
France	21,850	22,100	22,140	21,990	21,740	21,710	21,890	21,950	22,010	22,410
Germany[2]	27,200	27,950	36,910	36,420	36,020	35,900	35,850	35,680	35,540	35,720
Italy	20,770	21,080	21,360	21,230	20,430	20,080	19,980	20,060	20,050	20,170
Netherlands	5,980	6,230	6,350	6,560	6,620	6,670	6,760	6,900	7,130	7,410
Sweden	4,480	4,513	4,447	4,265	4,028	3,992	4,056	4,019	3,973	4,034
United Kingdom	26,510	26,740	26,090	25,530	25,340	25,550	26,000	26,280	26,740	27,050
Employment-population ratio[4]										
United States[1]	63.0	62.8	61.7	61.5	61.7	62.5	62.9	63.2	63.8	64.1
Canada	62.4	61.9	59.8	58.4	58.2	58.5	58.6	58.6	58.9	59.7
Australia	60.1	60.1	57.9	57.0	56.6	57.7	59.1	59.1	58.8	59.2
Japan	60.8	61.3	61.8	62.0	61.7	61.3	60.9	60.9	61.0	60.2
France	50.7	50.9	50.6	49.9	49.0	48.7	48.7	48.5	48.3	49.1
Germany[2]	52.0	52.6	55.5	54.4	53.4	52.8	52.5	52.2	51.9	52.2
Italy	43.6	43.9	44.5	44.0	43.1	42.1	41.8	41.9	41.8	41.9
Netherlands	50.9	52.6	53.2	54.5	54.7	54.7	55.1	55.9	57.5	59.5
Sweden	66.2	66.1	64.9	62.0	58.5	57.6	58.3	57.6	57.0	57.8
United Kingdom	59.3	59.6	58.0	56.7	56.2	56.5	57.2	57.6	58.3	58.8
Unemployed										
United States[1]	6,528	7,047	8,628	9,613	8,940	7,996	7,404	7,236	6,739	6,210
Canada	1,065	1,164	1,492	1,640	1,649	1,541	1,422	1,469	1,414	1,305
Australia	508	585	814	925	939	856	766	783	791	750
Japan	1,420	1,340	1,360	1,420	1,660	1,920	2,100	2,250	2,300	2,790
France	2,320	2,210	2,350	2,560	2,910	3,050	2,920	3,130	3,120	2,980
Germany[2]	1,640	1,460	2,210	2,620	3,110	3,320	3,200	3,500	3,910	3,710
Italy	1,760	1,590	1,580	1,680	2,330	2,560	2,720	2,760	2,800	2,840
Netherlands	450	410	400	390	470	520	510	470	400	310
Sweden	72	84	144	255	415	426	404	440	445	368
United Kingdom	2,070	1,990	2,520	2,880	2,970	2,730	2,480	2,340	2,020	1,820
Unemployment rate										
United States[1]	5.3	5.6	6.8	7.5	6.9	6.1	5.6	5.4	4.9	4.5
Canada	7.5	8.1	10.4	11.3	11.2	10.4	9.5	9.7	9.2	8.3
Australia	6.2	6.9	9.6	10.8	10.9	9.7	8.5	8.6	8.6	8.0
Japan	2.3	2.1	2.1	2.2	2.5	2.9	3.2	3.4	3.4	4.1
France	9.6	9.1	9.6	10.4	11.8	12.3	11.8	12.5	12.4	11.7
Germany[2]	5.7	5.0	5.6	6.7	7.9	8.5	8.2	8.9	9.9	9.4
Italy	7.8	7.0	6.9	7.3	10.2	11.3	12.0	12.1	12.3	12.3
Netherlands	7.0	6.2	5.9	5.6	6.6	7.2	7.0	6.4	5.3	4.0
Sweden	1.6	1.8	3.1	5.6	9.3	9.6	9.1	9.9	10.1	8.4
United Kingdom	7.2	6.9	8.8	10.1	10.5	9.7	8.7	8.2	7.0	6.3

[1] Data for 1994 are not directly comparable with data for 1993 and earlier years. For additional information, see the box note under "Employment and Unemployment Data" in the notes to this section.

[2] Data from 1991 onward refer to unified Germany. See *Comparative Civilian Labor Force Statistics, Ten Countries, 1959–1998*, October 22, 1999, on the Internet at **http://stats.bls.gov/flsdata.htm**.

[3] Labor force as a percent of the working-age population.

[4] Employment as a percent of the working-age population.

NOTE: See "Notes on the data" for information on breaks in series for the United States, France, Germany, Italy, the Netherlands, and Sweden

45. Annual indexes of manufacturing productivity and related measures, 12 countries

[1992 = 100]

Item and country	1960	1970	1980	1987	1988	1989	1990	1991	1993	1994	1995	1996	1997	1998
Output per hour														
United States	–	–	71.9	94.4	98.0	97.1	97.8	98.3	102.1	108.3	114.9	117.3	122.1	127.0
Canada	40.7	59.2	75.3	91.3	91.1	92.4	95.3	95.1	102.5	106.2	108.9	107.3	110.0	111.7
Japan	14.0	38.0	63.9	81.2	84.8	89.5	95.4	99.4	100.5	101.8	109.3	115.8	120.2	120.5
Belgium	18.0	32.9	65.4	88.9	92.0	96.9	96.8	99.1	102.5	108.4	113.2	114.7	121.7	122.4
Denmark	29.9	52.7	90.3	90.6	94.1	99.6	99.1	99.6	104.5	–	–	–	–	–
France	21.8	43.1	66.7	81.8	87.4	91.9	93.5	96.9	100.6	108.5	114.5	115.0	123.3	127.5
Germany	29.2	52.0	77.2	88.1	91.5	94.6	99.0	101.9	100.6	107.9	111.2	115.1	121.8	127.1
Italy	19.6	36.8	64.1	85.1	86.7	89.4	92.5	95.2	102.9	105.6	109.3	110.3	113.4	113.6
Netherlands	19.3	38.1	69.2	91.7	93.8	97.1	98.6	99.6	101.9	114.2	119.9	124.4	130.7	132.8
Norway	36.7	57.8	76.7	93.3	92.1	94.6	96.6	97.5	100.6	101.4	102.0	102.0	101.9	104.1
Sweden	27.6	52.8	74.0	90.1	90.8	93.8	95.0	95.0	106.7	116.1	122.4	125.4	133.6	136.5
United Kingdom	31.2	44.7	56.2	79.5	82.4	86.2	88.4	92.2	104.1	106.8	104.7	103.3	103.8	104.8
Output														
United States	–	–	77.3	97.9	104.5	104.0	102.5	98.7	103.5	112.2	119.6	121.6	128.8	134.2
Canada	34.2	60.5	85.4	103.2	109.3	110.8	106.6	98.8	105.1	113.2	118.8	120.2	128.0	133.0
Japan	10.7	38.8	59.9	78.4	84.6	90.2	96.3	101.4	96.0	95.4	100.6	106.7	110.0	103.9
Belgium	30.7	57.6	78.2	88.8	93.3	99.1	101.0	100.7	97.0	101.4	104.2	104.2	109.0	111.8
Denmark	40.8	68.0	91.3	99.3	100.8	104.3	102.7	101.7	99.0	109.3	115.1	119.0	121.7	127.3
France	31.0	64.1	88.7	87.2	92.2	97.2	99.1	99.8	95.7	100.3	104.9	104.6	110.3	114.6
Germany	41.5	70.9	85.3	88.0	90.9	94.0	99.1	102.8	91.8	93.5	93.7	92.5	95.8	100.7
Italy	21.4	44.7	78.4	88.2	94.5	98.1	99.6	99.2	96.4	102.2	107.2	106.7	110.4	112.5
Netherlands	31.7	59.5	77.4	89.5	92.8	96.9	100.1	100.6	98.2	104.2	107.8	110.6	116.1	118.8
Norway	56.5	89.1	103.6	110.7	105.3	101.3	100.2	98.3	102.7	106.7	109.0	110.1	113.3	116.4
Sweden	46.5	81.7	91.8	107.7	110.2	111.6	110.6	103.6	101.3	115.7	130.1	132.9	140.3	146.4
United Kingdom	67.8	90.4	87.2	94.5	101.5	105.5	105.4	100.1	101.5	106.2	107.8	108.3	109.3	109.7
Total hours														
United States	92.1	104.4	107.5	103.8	106.6	107.1	104.8	100.4	101.4	103.6	104.0	103.7	105.5	105.6
Canada	84.1	102.1	113.5	113.0	120.0	119.9	111.9	103.8	102.6	106.6	109.1	112.0	115.4	119.0
Japan	76.3	102.3	93.8	96.6	99.8	100.8	100.9	102.0	95.6	93.7	92.0	92.2	91.5	86.2
Belgium	170.7	174.7	119.7	100.0	101.5	102.3	104.3	101.5	94.7	93.6	92.0	90.8	89.5	91.3
Denmark	136.5	129.0	101.1	109.6	107.2	104.7	103.7	102.1	94.8	–	–	–	–	–
France	142.1	148.7	133.1	106.6	105.5	105.8	105.9	103.0	95.1	92.4	91.6	91.0	89.5	89.9
Germany	142.3	136.3	110.5	99.9	99.3	99.3	100.1	100.9	91.3	86.7	84.3	80.4	78.6	79.3
Italy	109.0	121.2	122.4	103.6	108.9	109.7	107.7	104.2	93.6	96.7	98.0	96.7	97.4	99.0
Netherlands	164.7	156.4	111.9	97.6	98.9	99.7	101.6	101.0	96.4	91.3	90.0	88.9	88.8	89.5
Norway	154.0	154.3	135.0	118.6	114.3	107.1	103.7	100.8	102.1	105.2	106.9	107.9	111.1	111.9
Sweden	168.3	154.7	124.0	119.5	121.4	119.0	116.4	109.0	94.9	99.6	106.3	106.0	105.0	107.3
United Kingdom	217.4	202.1	155.3	118.9	123.2	122.3	119.2	108.5	97.5	99.4	103.0	104.8	105.4	104.7
Compensation per hour														
United States	14.9	23.8	55.8	80.9	84.2	86.9	91.0	95.8	102.9	105.8	108.3	110.7	115.1	120.0
Canada	10.4	17.8	47.7	75.3	77.8	82.5	89.5	94.7	99.6	100.4	103.6	102.8	106.7	110.8
Japan	4.3	16.5	58.6	77.9	79.2	84.2	90.7	95.9	104.6	106.7	109.5	110.9	114.1	115.0
Belgium	5.4	13.7	52.5	79.7	81.1	85.9	90.1	97.3	104.8	106.1	109.2	112.0	115.1	115.9
Denmark	4.6	13.3	49.6	80.1	82.9	87.7	92.7	95.9	104.6	–	–	–	–	–
France	4.3	10.3	40.8	78.6	81.6	86.0	90.6	96.2	102.8	105.0	107.7	109.4	112.4	114.0
Germany	8.1	20.7	53.6	76.0	79.1	83.2	89.4	95.1	105.9	111.7	117.7	123.7	126.6	127.6
Italy	1.6	4.7	28.2	66.7	69.3	75.9	84.4	96.3	107.5	107.8	112.8	120.9	125.9	124.8
Netherlands	6.4	20.2	64.4	87.8	87.7	88.5	90.8	95.2	103.7	108.2	110.6	113.9	117.5	117.8
Norway	4.7	11.8	39.0	78.5	83.3	87.2	92.3	97.5	101.5	104.4	109.2	113.6	119.1	126.4
Sweden	4.1	10.8	37.4	67.3	71.7	79.4	87.6	95.4	98.0	101.1	106.2	113.4	118.3	121.5
United Kingdom	3.1	6.3	33.2	64.8	67.7	72.9	80.9	90.5	104.3	106.5	107.4	108.2	112.8	119.2
Unit labor costs: National currency basis														
United States	–	–	77.6	85.7	85.9	89.5	93.1	97.5	100.8	97.7	94.3	94.3	94.3	94.5
Canada	25.5	30.0	63.3	82.5	85.5	89.2	93.9	99.6	97.2	94.5	95.2	95.8	96.2	99.2
Japan	30.9	43.3	91.7	96.0	93.4	94.0	95.0	96.5	104.1	104.9	100.1	95.8	95.0	95.4
Belgium	30.1	41.7	80.3	89.7	88.1	88.7	93.0	98.1	102.3	97.9	96.4	97.6	94.6	94.7
Denmark	15.4	25.2	55.0	88.4	88.2	88.1	93.6	96.3	100.1	93.0	93.4	92.3	95.3	94.9
France	19.5	24.0	61.2	96.2	93.4	93.6	96.8	99.3	102.2	96.8	94.0	95.1	91.1	89.4
Germany	27.8	39.8	69.4	86.3	86.5	87.9	90.3	93.3	105.3	103.6	105.9	107.5	103.9	100.4
Italy	8.0	12.7	44.0	78.3	79.9	84.9	91.3	98.4	104.4	102.1	103.2	109.6	111.1	109.8
Netherlands	33.2	53.0	93.1	95.8	93.5	91.1	92.1	95.6	101.8	94.8	92.3	91.5	89.9	88.7
Norway	12.9	20.4	50.8	84.1	90.4	92.2	95.6	100.0	100.9	102.9	107.1	111.4	116.9	121.4
Sweden	14.9	20.5	50.6	74.7	79.0	84.7	92.3	100.4	91.8	87.0	86.8	90.4	88.5	89.0
United Kingdom	10.5	14.1	59.1	81.5	82.2	84.6	91.6	98.1	100.2	99.7	102.5	104.7	108.7	113.8
Unit labor costs: U.S. dollar basis														
United States	–	–	77.6	85.7	85.9	89.5	93.1	97.5	100.8	97.7	94.3	94.3	94.3	94.5
Canada	31.9	34.7	65.4	75.2	83.9	91.0	97.2	105.0	91.1	83.6	83.8	84.9	83.9	80.8
Japan	10.9	15.3	51.3	84.2	92.4	96.3	83.1	90.9	118.8	130.1	135.1	111.7	99.5	92.3
Belgium	19.4	27.0	88.3	77.2	77.0	72.3	89.5	92.3	95.1	94.2	105.2	101.4	84.9	83.8
Denmark	13.5	20.3	58.9	77.9	79.0	72.6	91.3	90.8	93.2	88.3	100.7	96.1	87.0	85.5
France	21.1	23.0	76.7	84.7	82.9	77.7	94.1	93.1	95.5	92.4	99.8	98.4	82.6	80.2
Germany	10.4	17.1	59.6	74.9	76.9	73.0	87.3	87.8	99.4	99.8	115.5	111.6	93.5	89.1
Italy	16.0	24.9	63.3	74.4	75.6	76.2	93.8	97.6	81.8	78.1	78.0	87.5	80.3	77.9
Netherlands	15.5	25.8	82.4	83.1	83.1	75.5	88.9	89.8	96.3	91.6	101.2	95.4	81.0	78.6
Norway	11.3	17.8	63.9	77.5	86.1	82.9	95.0	95.7	88.3	90.7	105.0	107.1	102.5	99.9
Sweden	16.8	23.0	69.6	68.5	75.0	76.4	90.8	96.6	68.6	65.7	70.8	78.5	67.5	65.2
United Kingdom	15.6	19.2	77.8	75.7	82.9	78.5	92.5	98.2	85.2	86.4	91.6	92.5	100.8	106.8

– Data not available.

46. Occupational injury and illness rates by industry,[1] United States

Industry and type of case[2]	Incidence rates per 100 full-time workers[3]											
	1987	1988	1989[1]	1990	1991	1992	1993[4]	1994[4]	1995[4]	1996[4]	1997[4]	1998[4]
PRIVATE SECTOR[5]												
Total cases	8.3	8.6	8.6	8.8	8.4	8.9	8.5	8.4	8.1	7.4	7.1	6.7
Lost workday cases	3.8	4.0	4.0	4.1	3.9	3.9	3.8	3.8	3.6	3.4	3.3	3.1
Lost workdays	69.9	76.1	78.7	84.0	86.5	93.8	–	–	–	–	–	–
Agriculture, forestry, and fishing[5]												
Total cases	11.2	10.9	10.9	11.6	10.8	11.6	11.2	10.0	9.7	8.7	8.4	7.9
Lost workday cases	5.7	5.6	5.7	5.9	5.4	5.4	5.0	4.7	4.3	3.9	4.1	3.9
Lost workdays	94.1	101.8	100.9	112.2	108.3	126.9	–	–	–	–	–	–
Mining												
Total cases	8.5	8.8	8.5	8.3	7.4	7.3	6.8	6.3	6.2	5.4	5.9	4.9
Lost workday cases	4.9	5.1	4.8	5.0	4.5	4.1	3.9	3.9	3.9	3.2	3.7	2.9
Lost workdays	144.0	152.1	137.2	119.5	129.6	204.7	–	–	–	–	–	–
Construction												
Total cases	14.7	14.6	14.3	14.2	13.0	13.1	12.2	11.8	10.6	9.9	9.5	8.8
Lost workday cases	6.8	6.8	6.8	6.7	6.1	5.8	5.5	5.5	4.9	4.5	4.4	4.0
Lost workdays	135.8	142.2	143.3	147.9	148.1	161.9	–	–	–	–	–	–
General building contractors:												
Total cases	14.2	14.0	13.9	13.4	12.0	12.2	11.5	10.9	9.8	9.0	8.5	8.4
Lost workday cases	6.5	6.4	6.5	6.4	5.5	5.4	5.1	5.1	4.4	4.0	3.7	3.9
Lost workdays	134.0	132.2	137.3	137.6	132.0	142.7	–	–	–	–	–	–
Heavy construction, except building:												
Total cases	14.5	15.1	13.8	13.8	12.8	12.1	11.1	10.2	9.9	9.0	8.7	8.2
Lost workday cases	6.4	7.0	6.5	6.3	6.0	5.4	5.1	5.0	4.8	4.3	4.3	4.1
Lost workdays	139.1	162.3	147.1	144.6	160.1	165.8	–	–	–	–	–	–
Special trades contractors:												
Total cases	15.0	14.7	14.6	14.7	13.5	13.8	12.8	12.5	11.1	10.4	10.0	9.1
Lost workday cases	7.1	7.0	6.9	6.9	6.3	6.1	5.8	5.8	5.0	4.8	4.7	4.1
Lost workdays	135.7	141.1	144.9	153.1	151.3	168.3	–	–	–	–	–	–
Manufacturing												
Total cases	11.9	13.1	13.1	13.2	12.7	12.5	12.1	12.2	11.6	10.6	10.3	9.7
Lost workday cases	5.3	5.7	5.8	5.8	5.6	5.4	5.3	5.5	5.3	4.9	4.8	4.7
Lost workdays	95.5	107.4	113.0	120.7	121.5	124.6	–	–	–	–	–	–
Durable goods:												
Total cases	12.5	14.2	14.1	14.2	13.6	13.4	13.1	13.5	12.8	11.6	11.3	10.7
Lost workday cases	5.4	5.9	6.0	6.0	5.7	5.5	5.4	5.7	5.6	5.1	5.1	5.0
Lost workdays	96.8	111.1	116.5	123.3	122.9	126.7	–	–	–	–	–	–
Lumber and wood products:												
Total cases	18.9	19.5	18.4	18.1	16.8	16.3	15.9	15.7	14.9	14.2	13.5	13.2
Lost workday cases	9.6	10.0	9.4	8.8	8.3	7.6	7.6	7.7	7.0	6.8	6.5	6.8
Lost workdays	176.5	189.1	177.5	172.5	172.0	165.8	–	–	–	–	–	–
Furniture and fixtures:												
Total cases	15.4	16.6	16.1	16.9	15.9	14.8	14.6	15.0	13.9	12.2	12.0	11.4
Lost workday cases	6.7	7.3	7.2	7.8	7.2	6.6	6.5	7.0	6.4	5.4	5.8	5.7
Lost workdays	103.6	115.7	–	–	–	128.4	–	–	–	–	–	–
Stone, clay, and glass products:												
Total cases	14.9	16.0	15.5	15.4	14.8	13.6	13.8	13.2	12.3	12.4	11.8	11.8
Lost workday cases	7.1	7.5	7.4	7.3	6.8	6.1	6.3	6.5	5.7	6.0	5.7	6.0
Lost workdays	135.8	141.0	149.8	160.5	156.0	152.2	–	–	–	–	–	–
Primary metal industries:												
Total cases	17.0	19.4	18.7	19.0	17.7	17.5	17.0	16.8	16.5	15.0	15.0	14.0
Lost workday cases	7.4	8.2	8.1	8.1	7.4	7.1	7.3	7.2	7.2	6.8	7.2	7.0
Lost workdays	145.8	161.3	168.3	180.2	169.1	175.5	–	–	–	–	–	–
Fabricated metal products:												
Total cases	17.0	18.8	18.5	18.7	17.4	16.8	16.2	16.4	15.8	14.4	14.2	13.9
Lost workday cases	7.2	8.0	7.9	7.9	7.1	6.6	6.7	6.7	6.9	6.2	6.4	6.5
Lost workdays	121.9	138.8	147.6	155.7	146.6	144.0	–	–	–	–	–	–
Industrial machinery and equipment:												
Total cases	11.3	12.1	12.1	12.0	11.2	11.1	11.1	11.6	11.2	9.9	10.0	9.5
Lost workday cases	4.4	4.7	4.8	4.7	4.4	4.2	4.2	4.4	4.4	4.0	4.1	4.0
Lost workdays	72.7	82.8	86.8	88.9	86.6	87.7	–	–	–	–	–	–
Electronic and other electrical equipment:												
Total cases	7.2	8.0	9.1	9.1	8.6	8.4	8.3	8.3	7.6	6.8	6.6	5.9
Lost workday cases	3.1	3.3	3.9	3.8	3.7	3.6	3.5	3.6	3.3	3.1	3.1	2.8
Lost workdays	55.9	64.6	77.5	79.4	83.0	81.2	–	–	–	–	–	–
Transportation equipment:												
Total cases	13.5	17.7	17.7	17.8	18.3	18.7	18.5	19.6	18.6	16.3	15.4	14.6
Lost workday cases	5.7	6.6	6.8	6.9	7.0	7.1	7.1	7.8	7.9	7.0	6.6	6.6
Lost workdays	105.7	134.2	138.6	153.7	166.1	186.6	–	–	–	–	–	–
Instruments and related products:												
Total cases	5.8	6.1	5.6	5.9	6.0	5.9	5.6	5.9	5.3	5.1	4.8	4.0
Lost workday cases	2.4	2.6	2.5	2.7	2.7	2.7	2.5	2.7	2.4	2.3	2.3	1.9
Lost workdays	43.9	51.5	55.4	57.8	64.4	65.3	–	–	–	–	–	–
Miscellaneous manufacturing industries:												
Total cases	10.7	11.3	11.1	11.3	11.3	10.7	10.0	9.9	9.1	9.5	8.9	8.1
Lost workday cases	4.6	5.1	5.1	5.1	5.1	5.0	4.6	4.5	4.3	4.4	4.2	3.9
Lost workdays	81.5	91.0	97.6	113.1	104.0	108.2	–	–	–	–	–	–

See footnotes at end of table.

46. Continued—Occupational injury and illness rates by industry,[1] United States

Industry and type of case[2]	Incidence rates per 100 full-time workers[3]											
	1987	1988	1989[1]	1990	1991	1992	1993[4]	1994[4]	1995[4]	1996[4]	1997[4]	1998[4]
Nondurable goods:												
Total cases	11.1	11.4	11.6	11.7	11.5	11.3	10.7	10.5	9.9	9.2	8.8	8.2
Lost workday cases	5.1	5.4	5.5	5.6	5.5	5.3	5.0	5.1	4.9	4.6	4.4	4.3
Lost workdays	93.5	101.7	107.8	116.9	119.7	121.8	–	–	–	–	–	–
Food and kindred products:												
Total cases	17.7	18.5	18.5	20.0	19.5	18.8	17.6	17.1	16.3	15.0	14.5	13.6
Lost workday cases	8.6	9.2	9.3	9.9	9.9	9.5	8.9	9.2	8.7	8.0	8.0	7.5
Lost workdays	153.7	169.7	174.7	202.6	207.2	211.9	–	–	–	–	–	–
Tobacco products:												
Total cases	8.6	9.3	8.7	7.7	6.4	6.0	5.8	5.3	5.6	6.7	5.9	6.4
Lost workday cases	2.5	2.9	3.4	3.2	2.8	2.4	2.3	2.4	2.6	2.8	2.7	3.1
Lost workdays	46.4	53.0	64.2	62.3	52.0	42.9	–	–	–	–	–	–
Textile mill products:												
Total cases	9.0	9.6	10.3	9.6	10.1	9.9	9.7	8.7	8.2	7.8	6.7	6.7
Lost workday cases	3.6	4.0	4.2	4.0	4.4	4.2	4.1	4.0	4.1	3.6	3.1	3.4
Lost workdays	65.9	78.8	81.4	85.1	88.3	87.1	–	–	–	–	–	–
Apparel and other textile products:												
Total cases	7.4	8.1	8.6	8.8	9.2	9.5	9.0	8.9	8.2	7.4	7.0	6.2
Lost workday cases	3.1	3.5	3.8	3.9	4.2	4.0	3.8	3.9	3.6	3.3	3.1	2.6
Lost workdays	59.5	68.2	80.5	92.1	99.9	104.6	–	–	–	–	–	–
Paper and allied products:												
Total cases	12.8	13.1	12.7	12.1	11.2	11.0	9.9	9.6	8.5	7.9	7.3	7.1
Lost workday cases	5.8	5.9	5.8	5.5	5.0	5.0	4.6	4.5	4.2	3.8	3.7	3.7
Lost workdays	122.3	124.3	132.9	124.8	122.7	125.9	–	–	–	–	–	–
Printing and publishing:												
Total cases	6.7	6.6	6.9	6.9	6.7	7.3	6.9	6.7	6.4	6.0	5.7	5.4
Lost workday cases	3.1	3.2	3.3	3.3	3.2	3.2	3.1	3.0	3.0	2.8	2.7	2.8
Lost workdays	55.1	59.8	63.8	69.8	74.5	74.8	–	–	–	–	–	–
Chemicals and allied products:												
Total cases	7.0	7.0	7.0	6.5	6.4	6.0	5.9	5.7	5.5	4.8	4.8	4.2
Lost workday cases	3.1	3.3	3.2	3.1	3.1	2.8	2.7	2.8	2.7	2.4	2.3	2.1
Lost workdays	58.8	59.0	63.4	61.6	62.4	64.2	–	–	–	–	–	–
Petroleum and coal products:												
Total cases	7.3	7.0	6.6	6.6	6.2	5.9	5.2	4.7	4.8	4.6	4.3	3.9
Lost workday cases	3.1	3.2	3.3	3.1	2.9	2.8	2.5	2.3	2.4	2.5	2.2	1.8
Lost workdays	65.9	68.4	68.1	77.3	68.2	71.2	–	–	–	–	–	–
Rubber and miscellaneous plastics products:												
Total cases	15.9	16.3	16.2	16.2	15.1	14.5	13.9	14.0	12.9	12.3	11.9	11.2
Lost workday cases	7.6	8.1	8.0	7.8	7.2	6.8	6.5	6.7	6.5	6.3	5.8	5.8
Lost workdays	130.8	142.9	147.2	151.3	150.9	153.3	–	–	–	–	–	–
Leather and leather products:												
Total cases	12.4	11.4	13.6	12.1	12.5	12.1	12.1	12.0	11.4	10.7	10.6	9.8
Lost workday cases	5.8	5.6	6.5	5.9	5.9	5.4	5.5	5.3	4.8	4.5	4.3	4.5
Lost workdays	114.5	128.2	130.4	152.3	140.8	128.5	–	–	–	–	–	–
Transportation and public utilities												
Total cases	8.4	8.9	9.2	9.6	9.3	9.1	9.5	9.3	9.1	8.7	8.2	7.3
Lost workday cases	4.9	5.1	5.3	5.5	5.4	5.1	5.4	5.5	5.2	5.1	4.8	4.3
Lost workdays	108.1	118.6	121.5	134.1	140.0	144.0	–	–	–	–	–	–
Wholesale and retail trade												
Total cases	7.7	7.8	8.0	7.9	7.6	8.4	8.1	7.9	7.5	6.8	6.7	6.5
Lost workday cases	3.4	3.5	3.6	3.5	3.4	3.5	3.4	3.4	3.2	2.9	3.0	2.8
Lost workdays	56.1	60.9	63.5	65.6	72.0	80.1	–	–	–	–	–	–
Wholesale trade:												
Total cases	7.4	7.6	7.7	7.4	7.2	7.6	7.8	7.7	7.5	6.6	6.5	6.5
Lost workday cases	3.7	3.8	4.0	3.7	3.7	3.6	3.7	3.8	3.6	3.4	3.2	3.3
Lost workdays	64.0	69.2	71.9	71.5	79.2	82.4	–	–	–	–	–	–
Retail trade:												
Total cases	7.8	7.9	8.1	8.1	7.7	8.7	8.2	7.9	7.5	6.9	6.8	6.5
Lost workday cases	3.3	3.4	3.4	3.4	3.3	3.4	3.3	3.3	3.0	2.8	2.9	2.7
Lost workdays	52.9	57.6	60.0	63.2	69.1	79.2	–	–	–	–	–	–
Finance, insurance, and real estate												
Total cases	2.0	2.0	2.0	2.4	2.4	2.9	2.9	2.7	2.6	2.4	2.2	1.9
Lost workday cases	.9	.9	.9	1.1	1.1	1.2	1.2	1.1	1.0	.9	0.9	0.7
Lost workdays	14.3	17.2	17.6	27.3	24.1	32.9	–	–	–	–	–	–
Services												
Total cases	5.5	5.4	5.5	6.0	6.2	7.1	6.7	6.5	6.4	6.0	5.6	5.2
Lost workday cases	2.7	2.6	2.7	2.8	2.8	3.0	2.8	2.8	2.8	2.6	2.5	2.4
Lost workdays	45.8	47.7	51.2	56.4	60.0	68.6	–	–	–	–	–	–

[1] Data for 1989 and subsequent years are based on the *Standard Industrial Classification Manual*, 1987 Edition. For this reason, they are not strictly comparable with data for the years 1985–88, which were based on the *Standard Industrial Classification Manual*, 1972 Edition, 1977 Supplement.

[2] Beginning with the 1992 survey, the annual survey measures only nonfatal injuries and illnesses, while past surveys covered both fatal and nonfatal incidents. To better address fatalities, a basic element of workplace safety, BLS implemented the Census of Fatal Occupational Injuries.

[3] The incidence rates represent the number of injuries and illnesses or lost workdays per 100 full-time workers and were calculated as (N/EH) X 200,000, where:

N = number of injuries and illnesses or lost workdays;

EH = total hours worked by all employees during the calendar year; and

200,000 = base for 100 full-time equivalent workers (working 40 hours per week, 50 weeks per year).

[4] Beginning with the 1993 survey, lost workday estimates will not be generated. As of 1992, BLS began generating percent distributions and the median number of days away from work by industry and for groups of workers sustaining similar work disabilities.

[5] Excludes farms with fewer than 11 employees since 1976.

– Data not available.

47. Fatal occupational injuries by event or exposure, 1993–98

Event or exposure[1]	Fatalities			
	1993–97	1997[2]	1998	
	Average	Number	Number	Percent
Total	6,335	6,238	6,026	100
Transportation incidents	2,611	2,605	2,630	44
Highway incident	1,334	1,393	1,431	24
Collision between vehicles, mobile equipment	652	640	701	12
Moving in same direction	109	103	118	2
Moving in opposite directions, oncoming	234	230	271	4
Moving in intersection	132	142	142	2
Vehicle struck stationary object or equipment	249	282	306	5
Noncollision incident	360	387	373	6
Jackknifed or overturned—no collision	267	298	300	5
Nonhighway (farm, industrial premises) incident	388	377	384	6
Overturned	214	216	216	4
Aircraft	315	261	223	4
Worker struck by a vehicle	373	367	413	7
Water vehicle incident	106	109	112	2
Railway	83	93	60	1
Assaults and violent acts	1,241	1,111	960	16
Homicides	995	860	709	12
Shooting	810	708	569	9
Stabbing	75	73	61	1
Other, including bombing	110	79	79	1
Self-inflicted injuries	215	216	223	4
Contact with objects and equipment	1,005	1,035	941	16
Struck by object	573	579	517	9
Struck by falling object	369	384	317	5
Struck by flying object	65	54	58	1
Caught in or compressed by equipment or objects	290	320	266	4
Caught in running equipment or machinery	153	189	129	2
Caught in or crushed in collapsing materials	124	118	140	2
Falls	668	716	702	12
Fall to lower level	591	653	623	10
Fall from ladder	94	116	111	2
Fall from roof	139	154	156	3
Fall from scaffold, staging	83	87	97	2
Fall on same level	52	44	51	1
Exposure to harmful substances or environments	586	554	572	9
Contact with electric current	320	298	334	6
Contact with overhead power lines	128	138	153	3
Contact with temperature extremes	43	40	46	1
Exposure to caustic, noxious, or allergenic substances	120	123	104	2
Inhalation of substances	70	59	48	1
Oxygen deficiency	101	90	87	1
Drowning, submersion	80	72	75	1
Fires and explosions	199	196	205	3
Other events or exposures[3]	26	21	16	-

[1] Based on the 1992 BLS Occupational Injury and Illness Classification Structures.

[2] The BLS news release issued August 12, 1998, reported a total of 6,218 fatal work injuries for calendar year 1997. Since then, an additional 20 job-related fatalities were identified, bringing the total job-related fatality count for 1997 to 6,238.

[3] Includes the category "Bodily reaction and exertion."

NOTE: Totals for major categories may include subcategories not shown separately. Percentages may not add to totals because of rounding. Dash indicates less than 0.5 percent.

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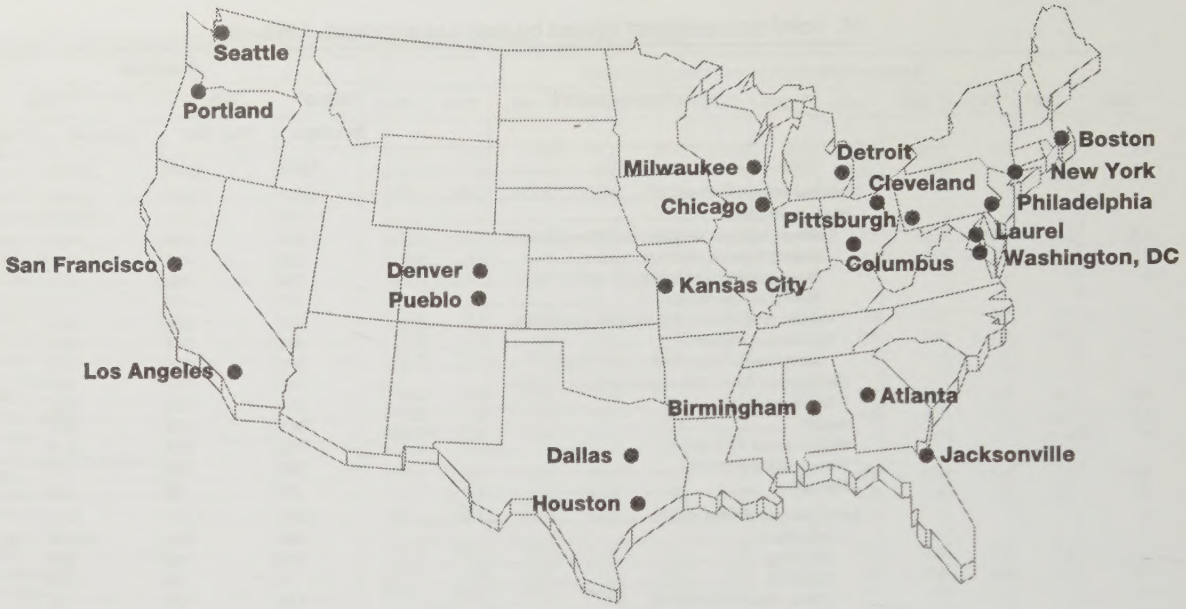

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Productivity and costs	March 7	4th quarter			May 4	1st quarter	2; 39–42
U.S. Import and Export Price Indexes	March 15	February	April 12	March	May 11	April	34–38
Producer Price Indexes	March 16	February	April 13	March	May 12	April	2; 31–33
Consumer Price indexes	March 17	February	April 14	March	May 16	April	2; 28–30
Real earnings	March 17	February	April 14	March	May 16	April	14, 16
Employment Cost Indexes			April 27	1st quarter			1–3; 21–24